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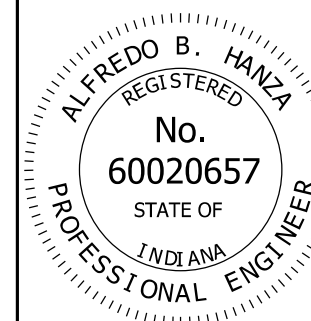
SHEET NO.	SUBJECT
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3	Double Arm Panel Dimensions and Member Sizes
4	Double Arm Connections, Weld Details, Chord End Plate Details, and Camber
5	Double Arm Connection to Column Details
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INDIANA DEPARTMENT OF TRANSPORTATION

SIGN CANTILEVER STRUCTURE  
DRAWING INDEX

SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-01

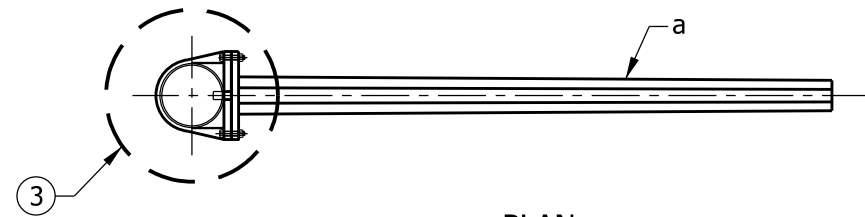


*/s/ Alfredo B. Hanza* 03/25/13

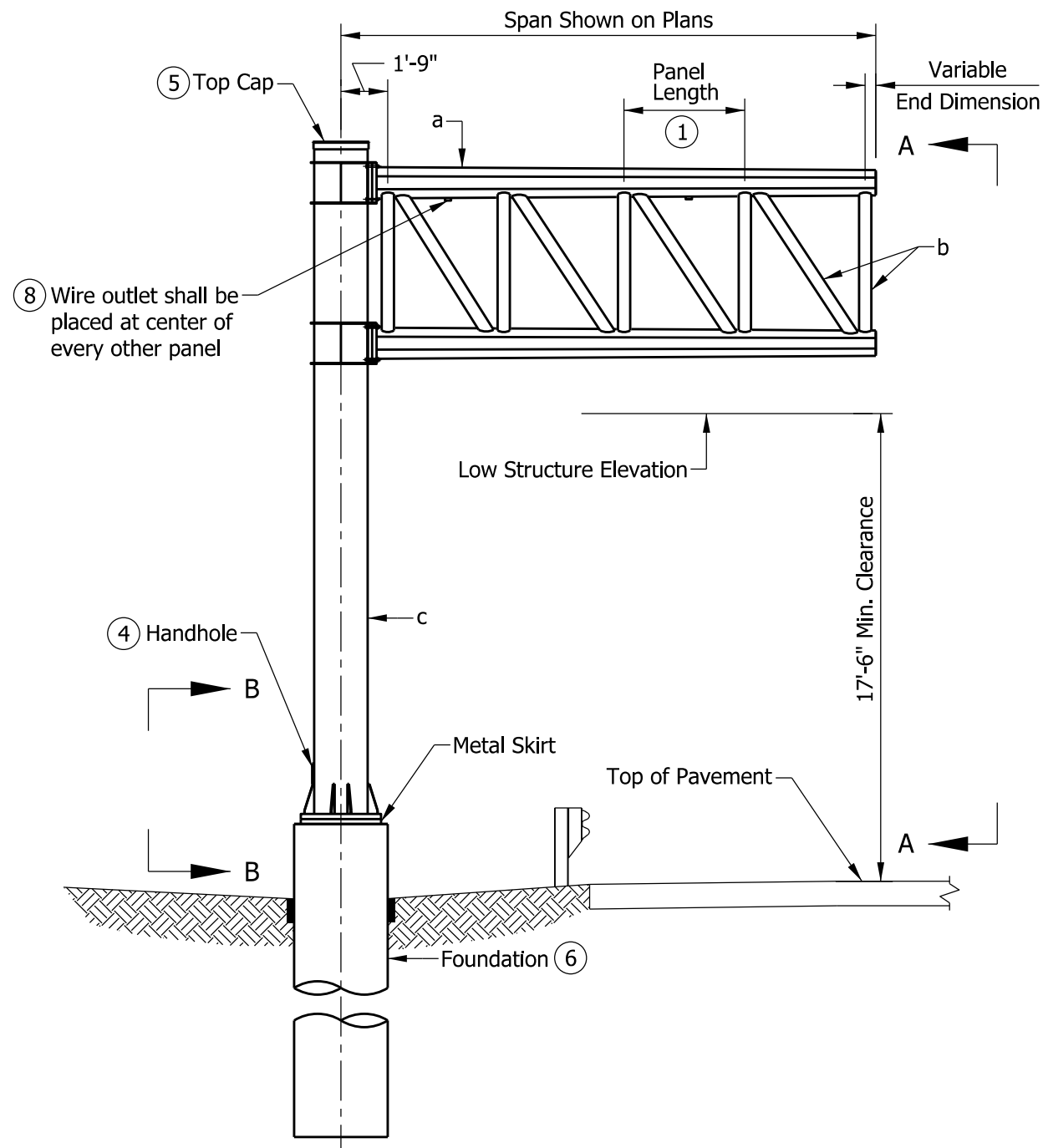
DESIGN STANDARDS ENGINEER DATE

*/s/ Mark A. Miller* 03/27/13

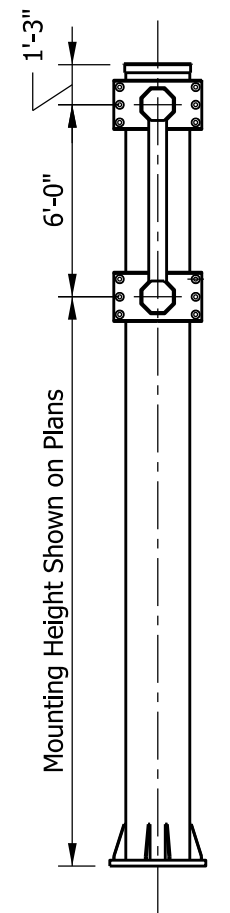
CHIEF ENGINEER DATE



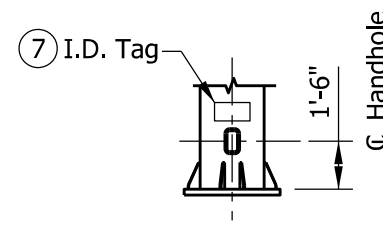
PLAN



FRONT ELEVATION



ELEVATION  
A-A



ELEVATION  
B-B

**NOTES:**

- ① See Standard Drawing E 802-SCLS-03 for panel dimensions and member sizes.
2. Maximum deviation of a chord from a straight line shall be 1/8".
- ③ See Standard Drawing E 802-SCLS-05 for connection to column details.
- ④ See Standard Drawing E 802-SCLS-13 for handhole detail.
- ⑤ See Standard Drawing E 802-SCLS-06 for top cap and cable J-hook detail.
- ⑥ See Standard Drawings E 802-SCLS-14, -17, and -20 for foundation details.
- ⑦ See Standard Drawing E 802-SCLS-13 for I.D. tag detail.
- ⑧ See Standard Drawing E 802-SCLS-10 for wire outlet detail.

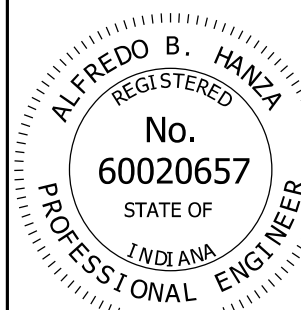
**LEGEND:**

- a - Chord
- b - Vertical and Vertical Diagonal
- c - Column

INDIANA DEPARTMENT OF TRANSPORTATION

SIGN CANTILEVER STRUCTURE  
DOUBLE ARM  
PLAN AND ELEVATION  
SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-02



/s/ Alfredo B. Hanza 02/05/13

DESIGN STANDARDS ENGINEER DATE

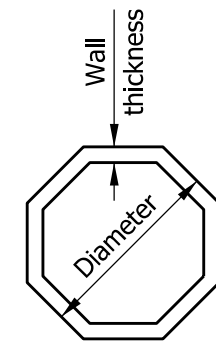
/s/ Mark A. Miller 03/27/13

CHIEF ENGINEER DATE

DOUBLE ARM PANEL DIMENSIONS			
SPAN	NO. OF PANELS	PANEL LENGTH	VARIABLE END DIMENSION
10'	2	4'-0"	0'-3"
11'	3	3'-0"	0'-3"
12'	3	3'-3"	0'-6"
13'	3	3'-6"	0'-9"
14'	3	4'-0"	0'-3"
15'	3	4'-3"	0'-6"
16'	4	3'-6"	0'-3"
17'	4	3'-9"	0'-3"
18'	4	4'-0"	0'-3"
19'	4	4'-3"	0'-3"
20'	4	4'-6"	0'-3"

**NOTES:**

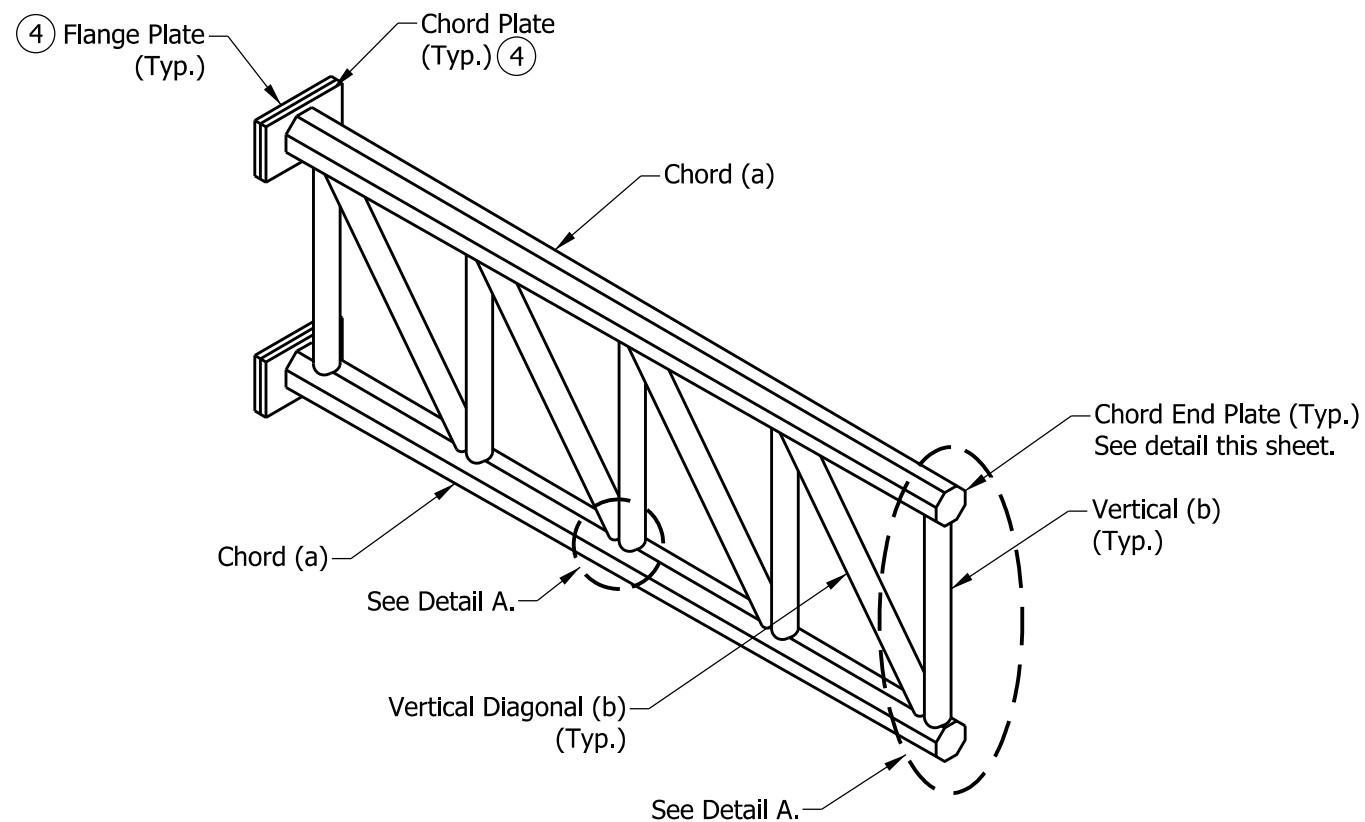
- All panels on the double arm shall be the same length. The minimum panel length is 3'-0" and the maximum is 4'-6".
- See Standard Drawing E 802-SCLS-04 for connections, weld details, and required camber.
- For base plate and anchor bolt details see Standard Drawing E 802-SCLS-12.
- See Standard Drawings E 802-SCLS-14, -17, and -20 for foundation details.
- All member diameters shown are outside diameters.
- ⑥ Double arm chord shape shall be octagonal tubular with 0.14 in./ft. taper, maximum diameter shown in table.



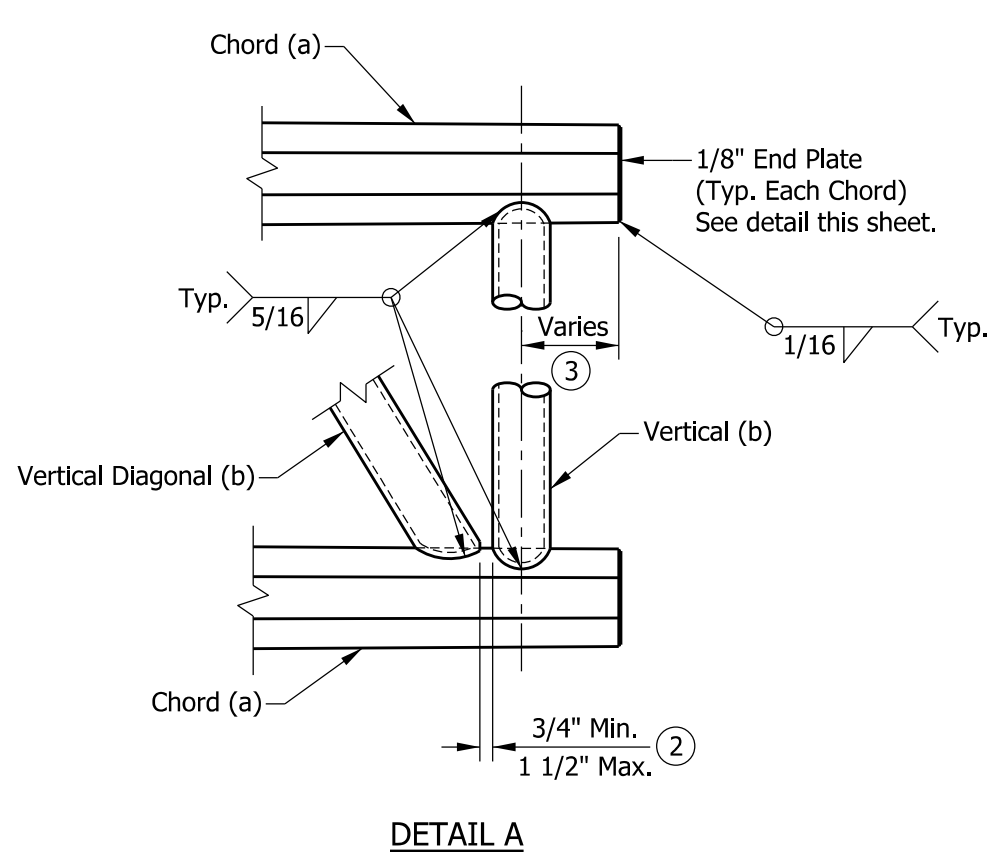
OCTAGON TUBULAR SHAPE

DOUBLE ARM MEMBER SIZES									
STR. TYPE	MAX SPAN (FT.)	MAX SIGN AREA (FT.)	MAX MOUNTING HEIGHT (FT.)	⑥ CHORD a		VERTICAL/VERTICAL DIAGONAL b		COLUMN c	
				DIAMETER (IN.)	WALL THICK. (IN.)	DIAMETER (IN.)	WALL THICK. (IN.)	DIAMETER (IN.)	WALL THICK. (IN.)
A	10	180	24	7 5/8	0.500	4 1/2	0.337	18	0.750
B	15	280	24	10 3/4	0.593	5 9/16	0.500	20	0.812
C	20	380	24	14	0.593	6 5/8	0.719	24	0.968

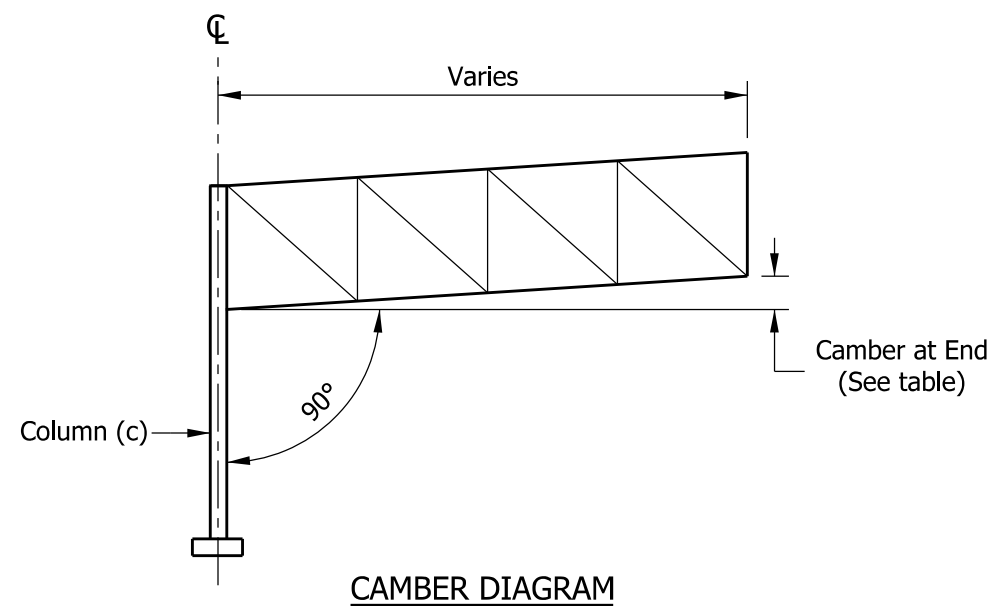
INDIANA DEPARTMENT OF TRANSPORTATION	
SIGN CANTILEVER STRUCTURE DOUBLE ARM PANEL DIMENSIONS AND MEMBER SIZES SEPTEMBER 2013	
STANDARD DRAWING NO. E 802-SCLS-03	
	/s/ <i>Alfredo B. Hanza</i> 02/05/13 DESIGN STANDARDS ENGINEER      DATE
	/s/ <i>Mark A. Miller</i> 03/27/13 CHIEF ENGINEER      DATE



**DOUBLE ARM**



**DETAIL A**

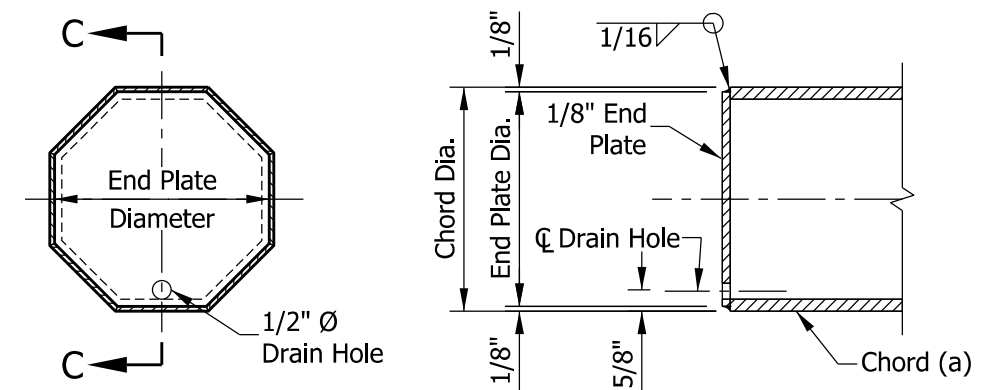


**CAMBER DIAGRAM**

DOUBLE ARM		
STR. TYPE	LENGTH	CAMBER AT END (IN.)
A	10'-0"	0.375
B	15'-0"	0.750
C	20'-0"	1.000

**NOTES:**

1. See Standard Drawing E 802-SCLS-03 for panel dimensions and member sizes.
2. Vertical diagonals shall be placed for minimum offset from the panel point such that the offset shall provide a 3/4" minimum to 1 1/2" maximum clearance between each diagonal and vertical member, and to provide clearance for U-bolt connections to signs.
3. For variable end dimension, see table of panel dimensions on Standard Drawing E 802-SCLS-03.
4. See Standard Drawing E 802-SCLS-05 for flange plate and chord plate details.



**END VIEW**

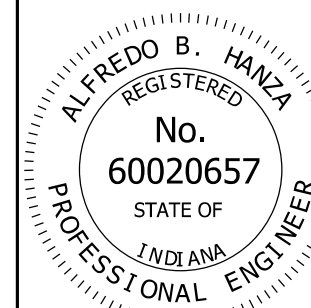
**SECTION C-C**

**CHORD END PLATE DETAILS**

INDIANA DEPARTMENT OF TRANSPORTATION

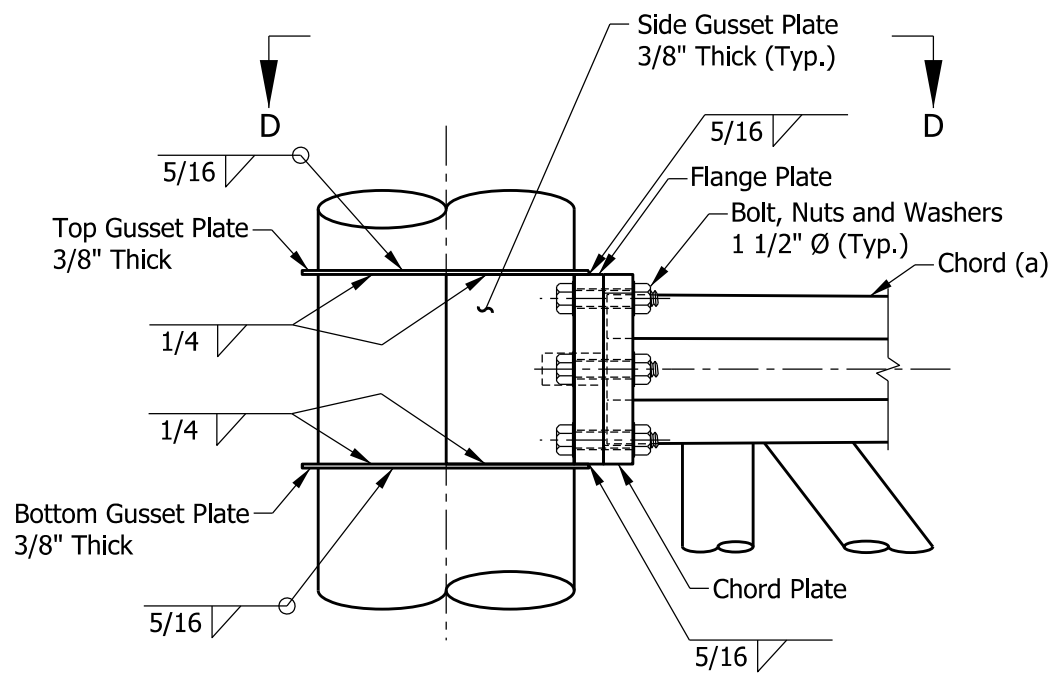
SIGN CANTILEVER STRUCTURE  
DOUBLE ARM CONNECTIONS, WELD DETAILS,  
CHORD END PLATE DETAILS, AND CAMBER  
SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-04

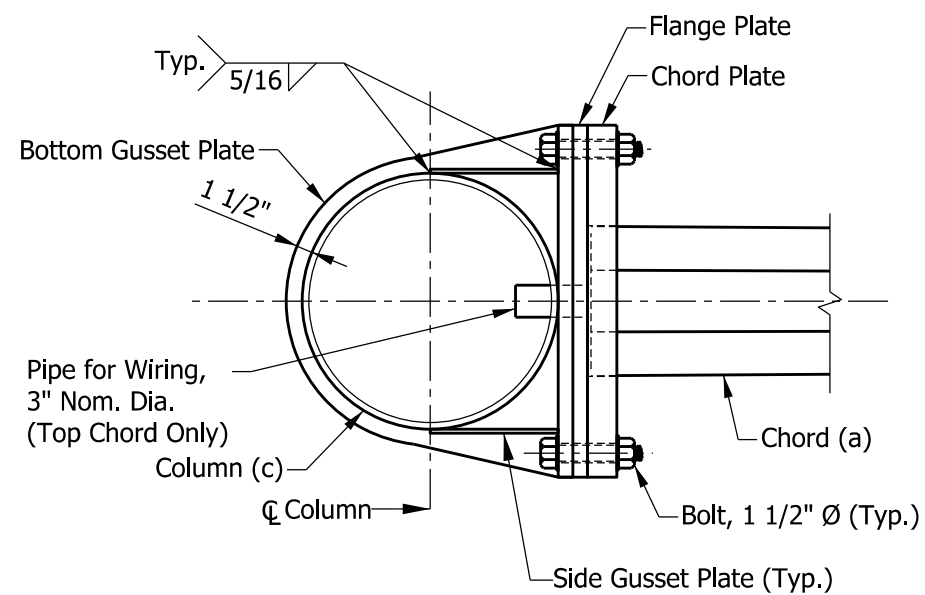


/s/ Alfredo B. Hanza 02/05/13  
DESIGN STANDARDS ENGINEER DATE

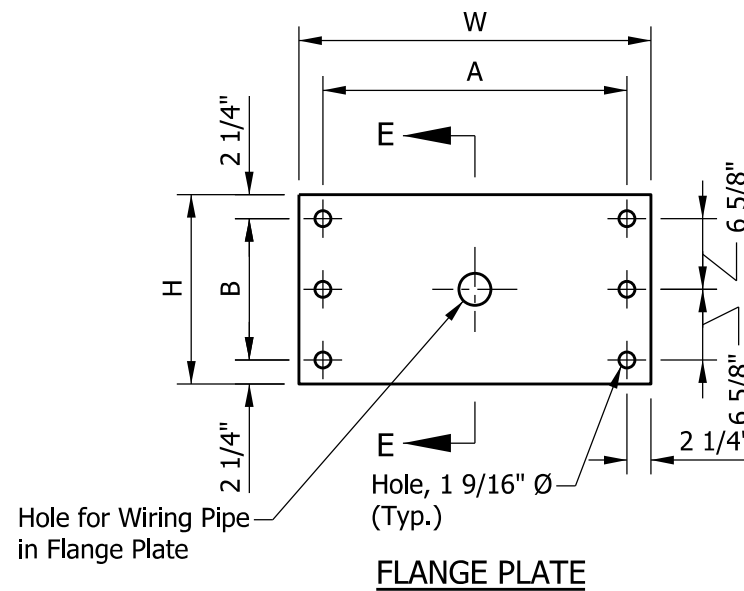
/s/ Mark A. Miller 03/27/13  
CHIEF ENGINEER DATE



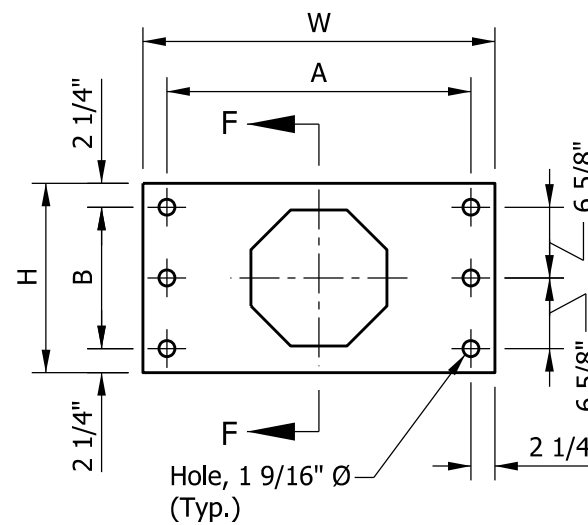
**DOUBLE ARM TRUSS CONNECTION  
ELEVATION**



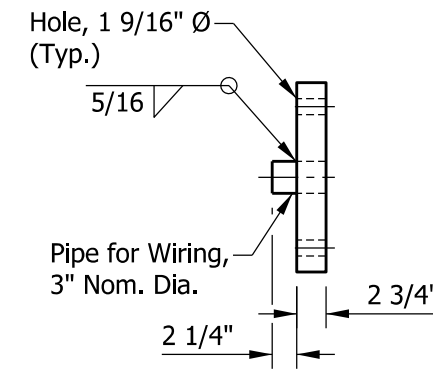
**SECTION D-D**



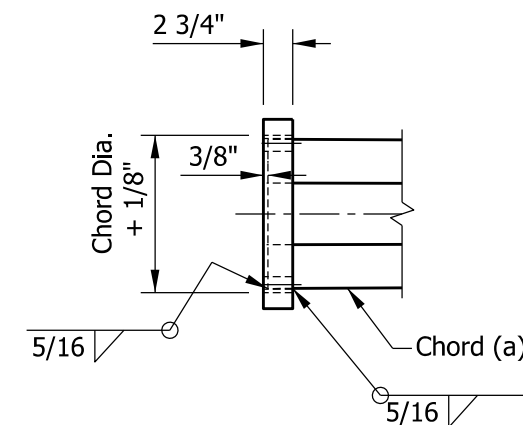
**FLANGE PLATE**



**CHORD PLATE**



**SECTION E-E**



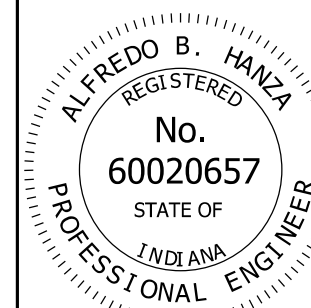
**SECTION F-F**

PLATE DIMENSIONS					
COLUMN DIAMETER	CHORD DIAMETER	W	H	A	B
18"	7 5/8"	2'-3"	1'-2"	1'-10 1/2"	9 1/2"
20"	10 3/4"	2'-5"	1'-5"	2'-0 1/2"	1'-0 1/2"
24"	14"	2'-9"	1'-6"	2'-4 1/2"	1'-1 1/2"

INDIANA DEPARTMENT OF TRANSPORTATION

SIGN CANTILEVER STRUCTURE  
DOUBLE ARM  
CONNECTION TO COLUMN DETAILS  
SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-05



/s/ Alfredo B. Hanza 02/05/13

DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 03/27/13

CHIEF ENGINEER DATE

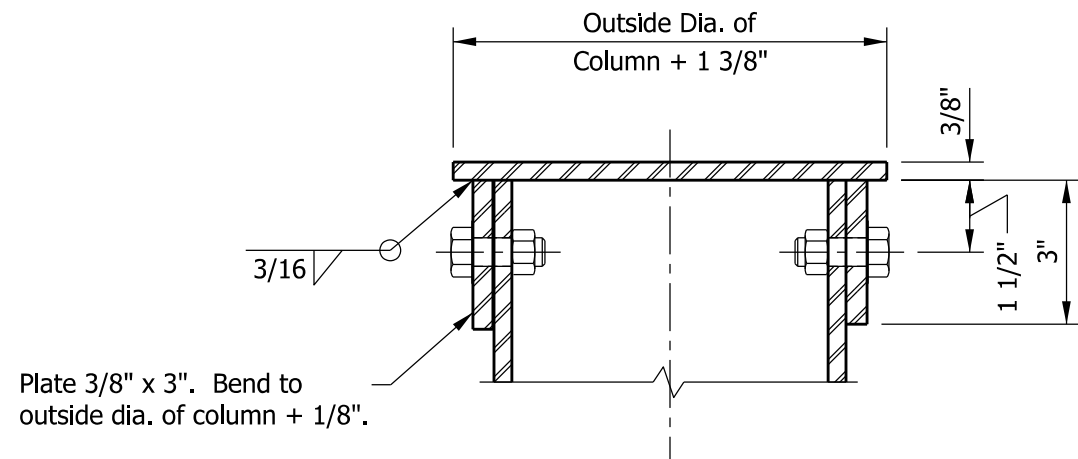
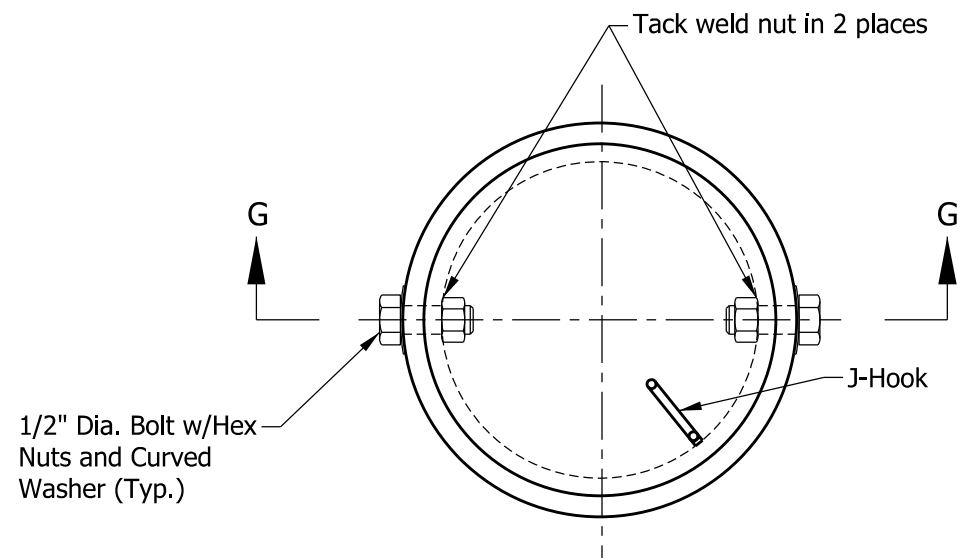


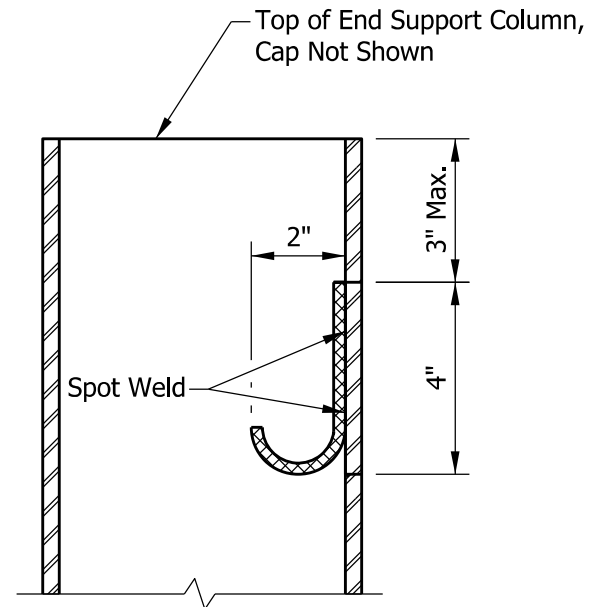
Plate 3/8" x 3". Bend to outside dia. of column + 1/8".

**SECTION G-G**



1/2" Dia. Bolt w/Hex Nuts and Curved Washer (Typ.)

**PLAN  
TOP CAP - STEEL COLUMN**



**CABLE J-HOOK**

**NOTES:**

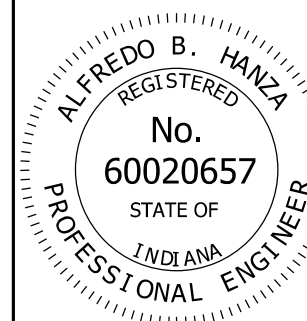
1. J-hook shall consist of 3/8" dia. bars constructed as shown, and spot-welded to inside of the columns.
2. Cap bolts used to attach top cap of columns shall be located to miss J-hook.

INDIANA DEPARTMENT OF TRANSPORTATION

SIGN CANTILEVER STRUCTURE  
DOUBLE ARM COLUMN TOP CAP  
AND CABLE J-HOOK

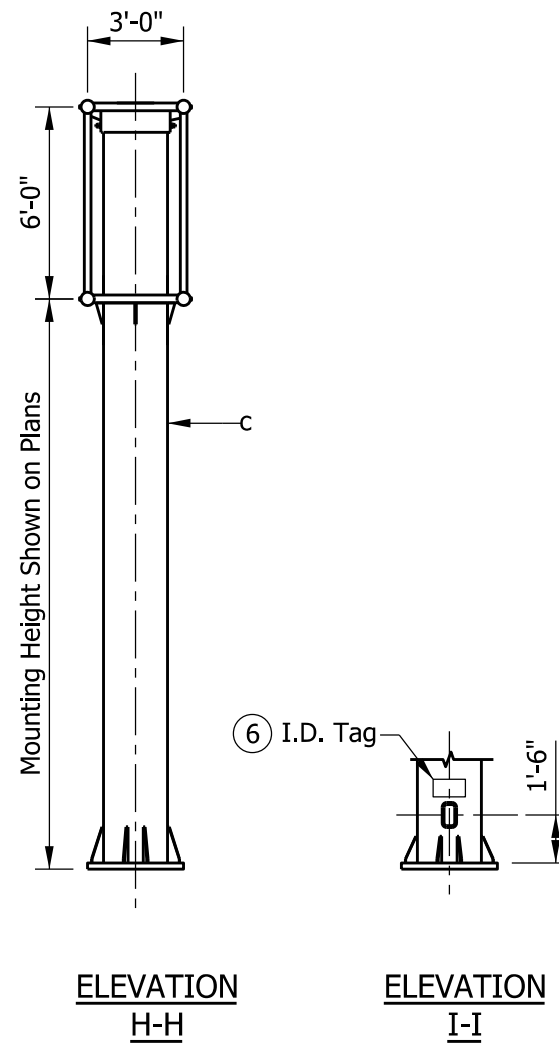
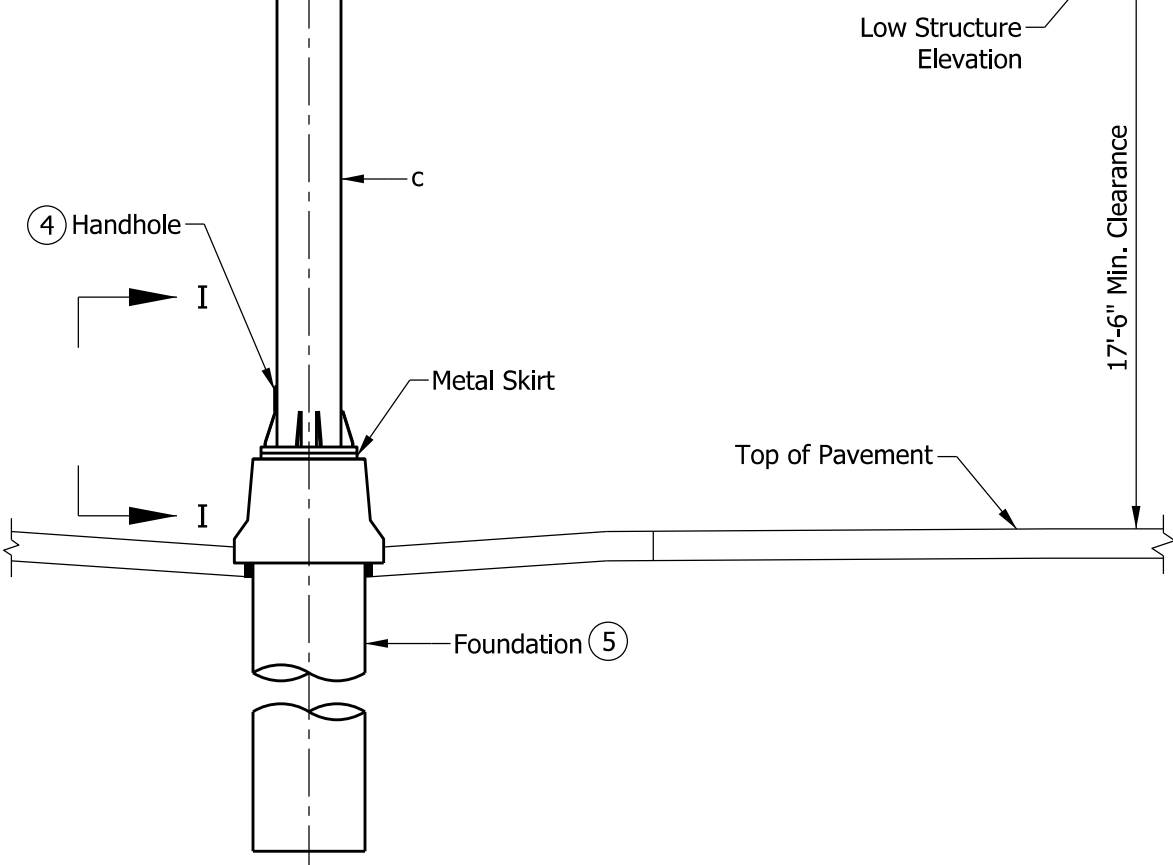
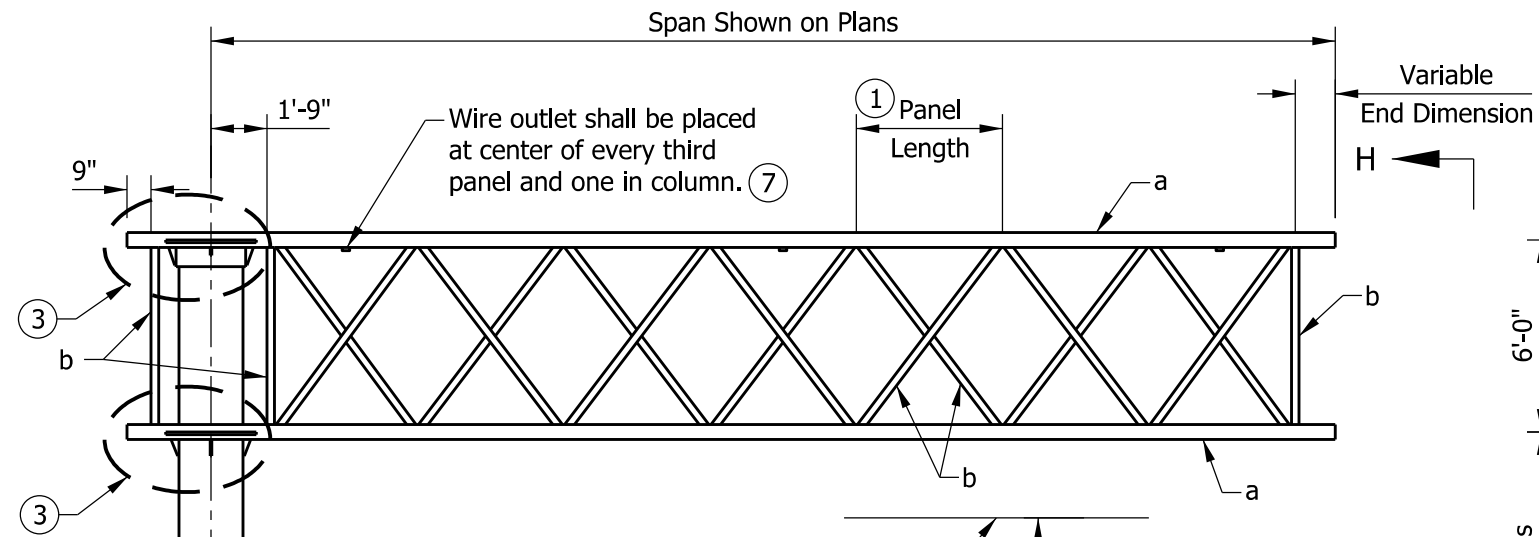
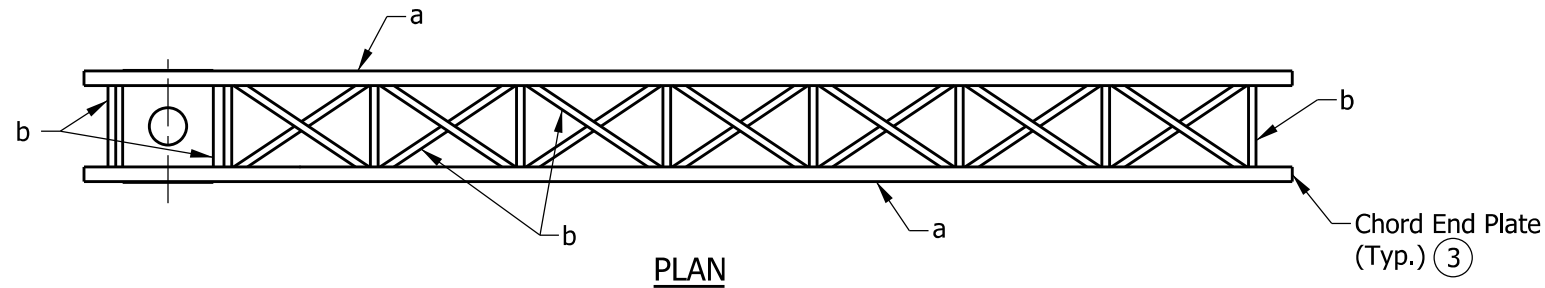
SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-06



*/s/ Alfredo B. Hanza* 02/05/13  
DESIGN STANDARDS ENGINEER DATE

*/s/ Mark A. Miller* 03/27/13  
CHIEF ENGINEER DATE



**NOTES:**

- (1) See Standard Drawing E 802-SCLS-08 for panel dimensions and member sizes.
2. Maximum deviation of a chord from a straight line shall be 1/8".
- (3) See Standard Drawings E 802-SCLS-09 through -11 for quadri-chord arm connection, weld details, chord end plate details, and camber.
- (4) See Standard Drawing E 802-SCLS-13 for handhole detail.
- (5) See Standard Drawings E 802-SCLS-15, -16, -18, -19, -21, and -22 for foundation details.
- (6) See Standard Drawing E 802-SCLS-13 for I.D. tag detail.
- (7) See Standard Drawing E 802-SCLS-10 for wire outlet detail.

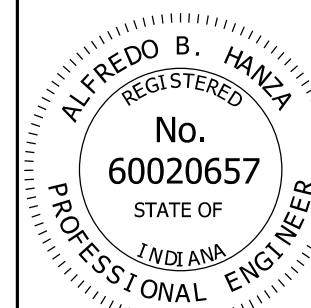
**LEGEND:**

- a - Chord
- b - Interior members:  
Verticals and vertical diagonals in front and back faces, and  
horizontals and horizontal diagonals in top and bottom faces of arm.
- c - Column

INDIANA DEPARTMENT OF TRANSPORTATION

SIGN CANTILEVER STRUCTURE  
QUADRI-CHORD  
PLAN AND ELEVATION  
SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-07



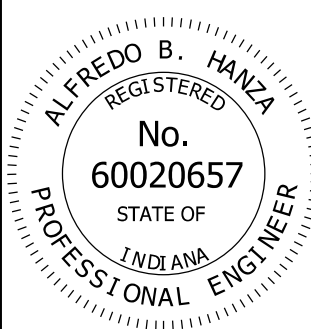
/s/ Alfredo B. Hanza	02/05/13
DESIGN STANDARDS ENGINEER	DATE
/s/ Mark A. Miller	03/27/13
CHIEF ENGINEER	DATE

PANEL DIMENSIONS			
SPAN	NO. OF PANELS	PANEL LENGTH	VARIABLE END DIMENSION
21'	5	3'-9"	0'-6"
22'	5	3'-9"	1'-6"
23'	5	4'-0"	1'-3"
24'	5	4'-3"	1'-0"
25'	5	4'-6"	0'-9"
26'	6	3'-9"	1'-9"
27'	6	4'-0"	1'-3"
28'	6	4'-3"	0'-9"
29'	6	4'-3"	1'-9"
30'	6	4'-6"	1'-3"
31'	7	4'-0"	1'-3"
32'	7	4'-3"	0'-6"
33'	7	4'-3"	1'-6"
34'	7	4'-6"	0'-9"
35'	7	4'-6"	1'-9"

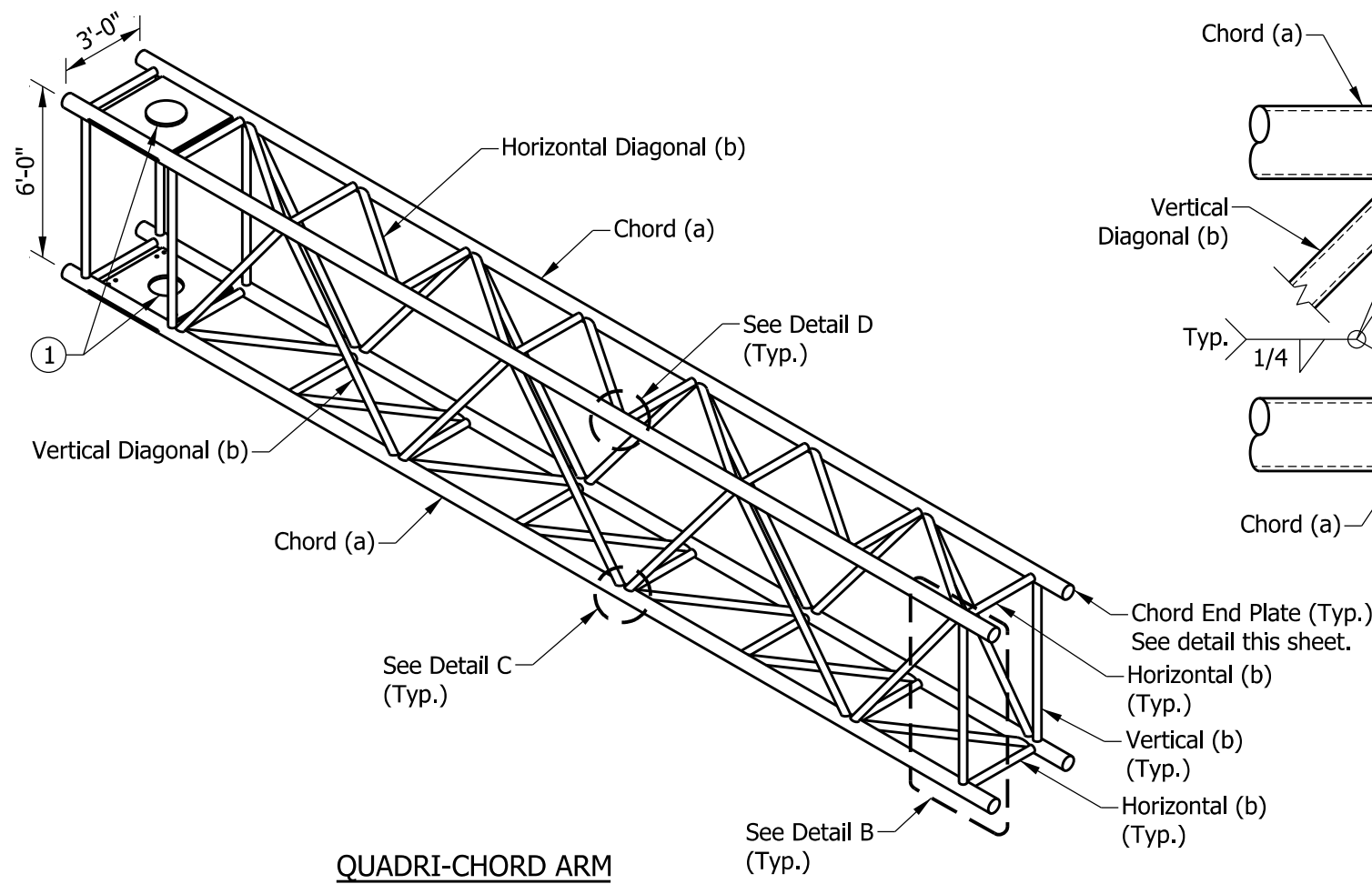
**NOTES:**

1. All panels in a structure shall be the same length. The minimum panel length is 3'-9" and the maximum is 4'-6".
2. See Standard Drawing E 802-SCLS-09 for connections, weld details, and required camber.
3. For base plate, anchor bolt, and metal skirt details see Standard Drawing E 802-SCLS-12.
4. All member diameters shown are outside diameters.
5. Quadri-chord arm chord shape shall be circular with constant diameter.

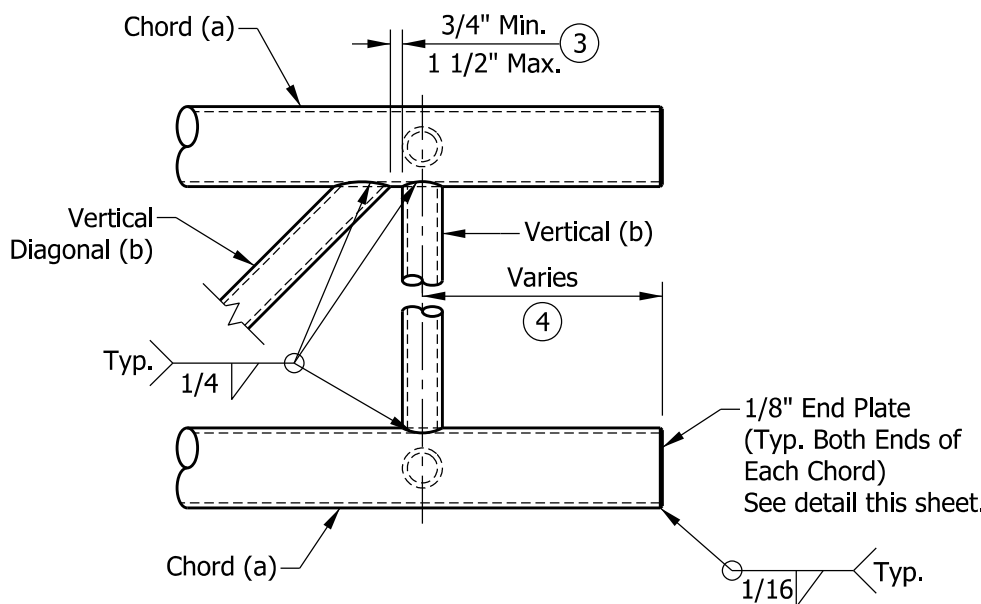
QUADRI-CHORD MEMBER SIZES									
STR. TYPE	MAX SPAN (FT.)	MAX SIGN AREA (FT.)	MAX MOUNTING HEIGHT (FT.)	⑤ CHORD a		VERT./HORIZ./DIAG. b		COLUMN c	
				DIAMETER (IN.)	WALL THICK. (IN.)	DIAMETER (IN.)	WALL THICK. (IN.)	DIAMETER (IN.)	WALL THICK. (IN.)
D	25	300	24	5 9/16	0.258	2 7/8	0.203	24	0.562
E	30	300	24	5 9/16	0.258	2 7/8	0.203	24	0.562
F	35	300	24	5 9/16	0.375	2 7/8	0.276	24	0.688
G	25	400	24	5 9/16	0.375	2 7/8	0.276	24	0.968
H	30	400	24	5 9/16	0.375	2 7/8	0.276	24	0.968
I	35	400	24	5 9/16	0.375	2 7/8	0.276	24	0.968

INDIANA DEPARTMENT OF TRANSPORTATION	
SIGN CANTILEVER STRUCTURE QUADRI-CHORD PANEL DIMENSIONS AND MEMBER SIZES SEPTEMBER 2013	
STANDARD DRAWING NO. E 802-SCLS-08	
	/s/ Alfredo B. Hanza      02/05/13 DESIGN STANDARDS ENGINEER      DATE
	/s/ Mark A. Miller      03/27/13 CHIEF ENGINEER      DATE





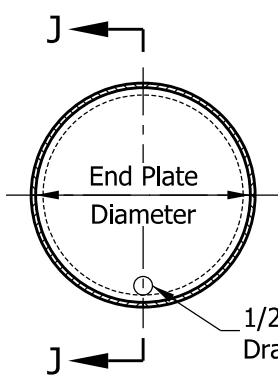
**QUADRI-CHORD ARM**



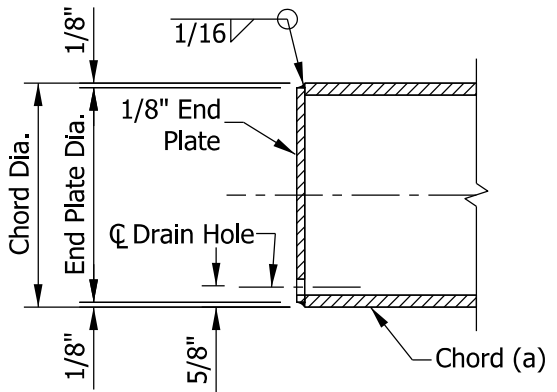
**DETAIL B**

**NOTES:**

- ① See Standard Drawing E 802-SCLS-10 and -11 for quadri-chord arm connection to column details.
- 2. See Standard Drawing E 802-SCLS-08 for panel dimensions and member sizes.
- ③ Vertical diagonals shall be placed for minimum offset from the panel point such that the offset shall provide a 3/4" minimum to 1 1/2" maximum clearance between each diagonal and vertical member, and to provide clearance for U-bolt connections to signs.
- ④ For variable end dimension, see table on Standard Drawing E 802-SCLS-08.

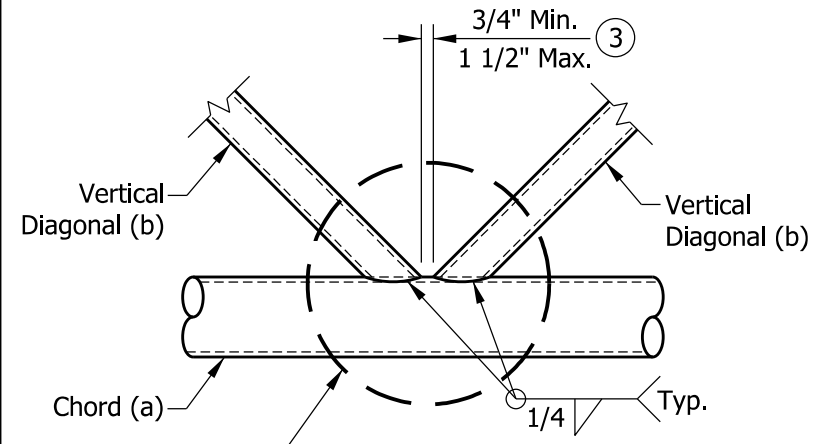


**END VIEW**

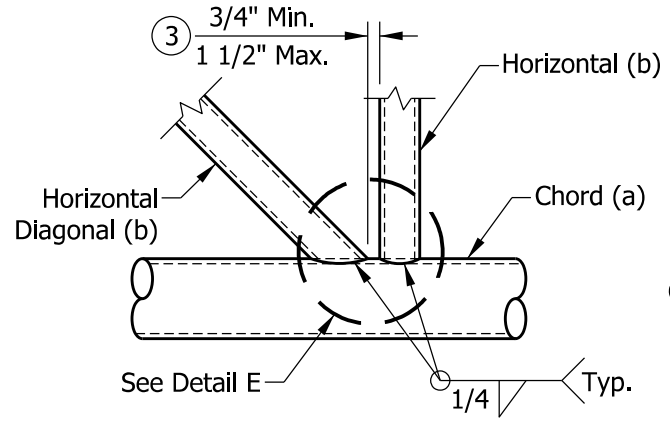


**SECTION J-J**

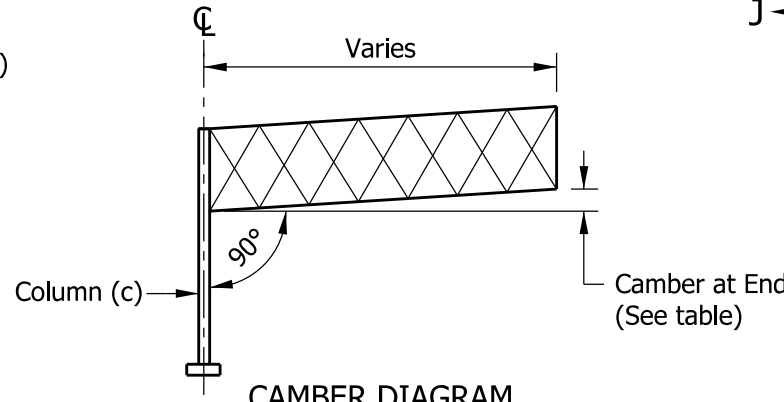
**CHORD END PLATE DETAILS**



**DETAIL C  
TYPICAL PANEL CONNECTION**

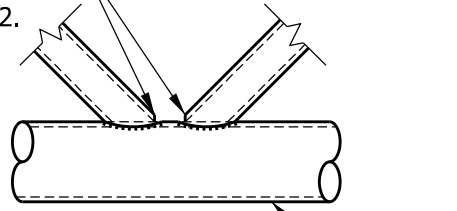


**DETAIL D  
TYPICAL PANEL CONNECTION**



**CAMBER DIAGRAM**

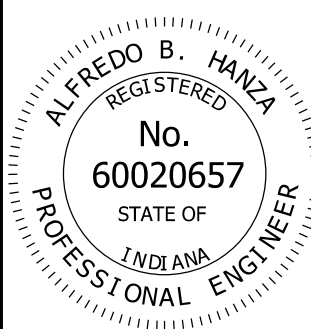
Top edge of diagonal member shall be cut back to facilitate throat thickness per AWS D.1, Fig. 3.2.



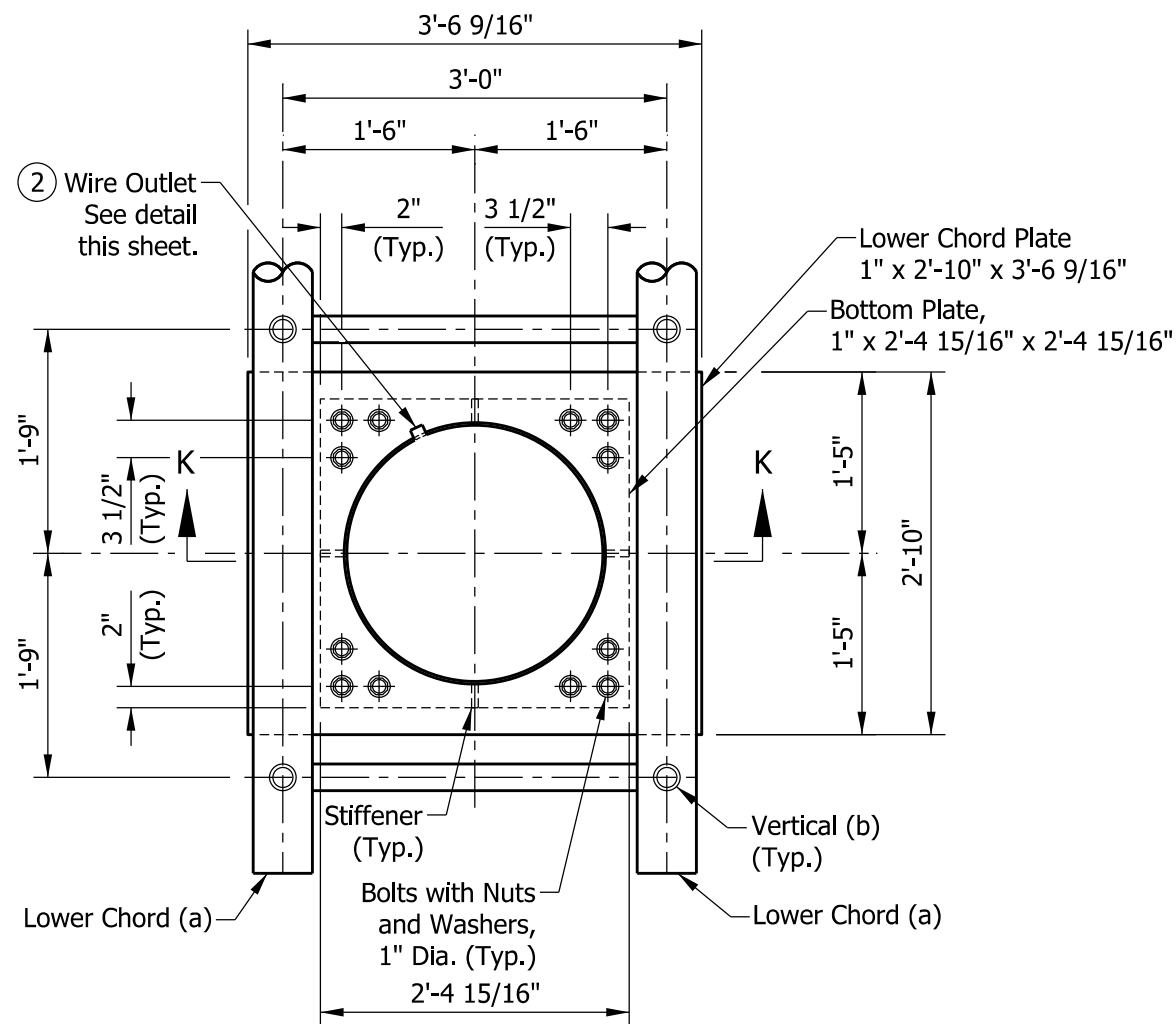
**DETAIL E**

QUADRI-CHORD ARM		
STR. TYPE	LENGTH	CAMBER AT END (IN.)
D	25'-0"	1.750
E	30'-0"	2.625
F	35'-0"	3.500
G	25'-0"	1.250
H	30'-0"	2.000
I	35'-0"	3.000

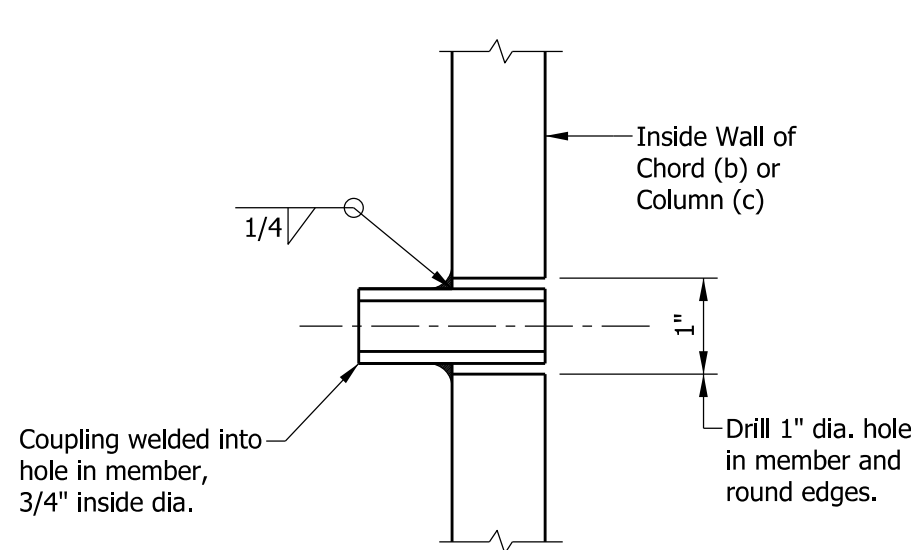
INDIANA DEPARTMENT OF TRANSPORTATION  
SIGN CANTILEVER STRUCTURE  
QUADRI-CHORD CONNECTIONS, WELD DETAILS,  
CHORD END PLATE DETAILS, AND CAMBER  
SEPTEMBER 2013  
STANDARD DRAWING NO. E 802-SCLS-09



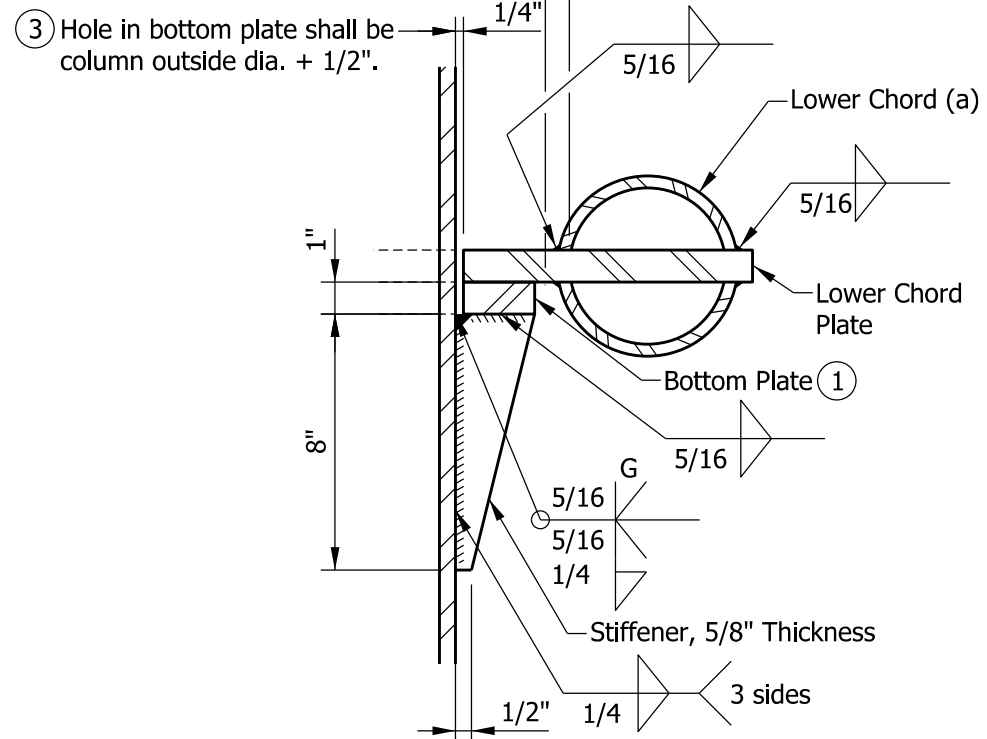
/s/ Alfredo B. Hanza 02/05/13  
DESIGN STANDARDS ENGINEER DATE  
/s/ Mark A. Miller 03/27/13  
CHIEF ENGINEER DATE



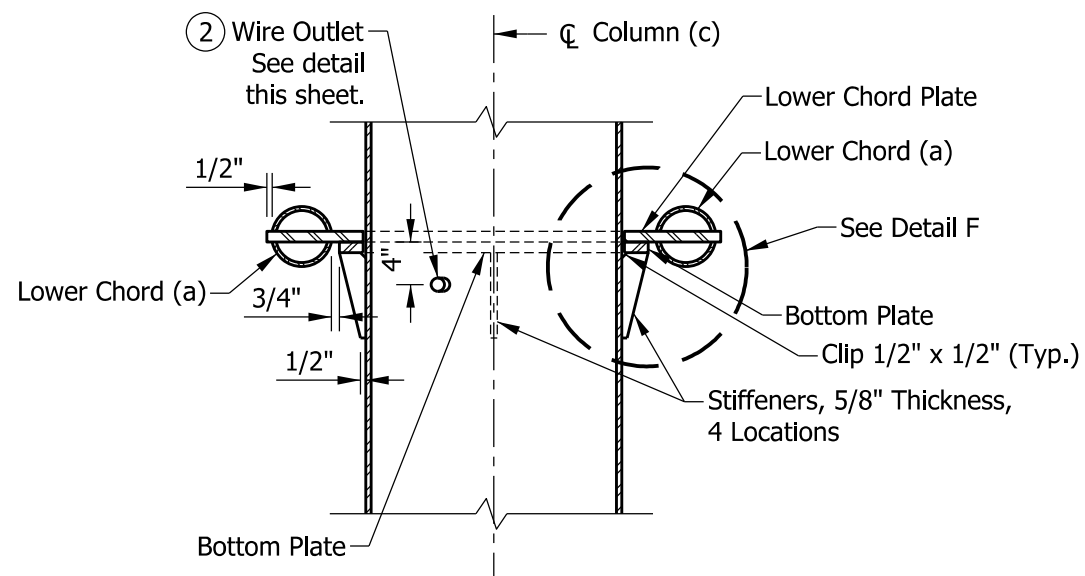
PLAN VIEW THROUGH COLUMN ABOVE LOWER CHORDS



TYPICAL WIRE OUTLET



DETAIL F

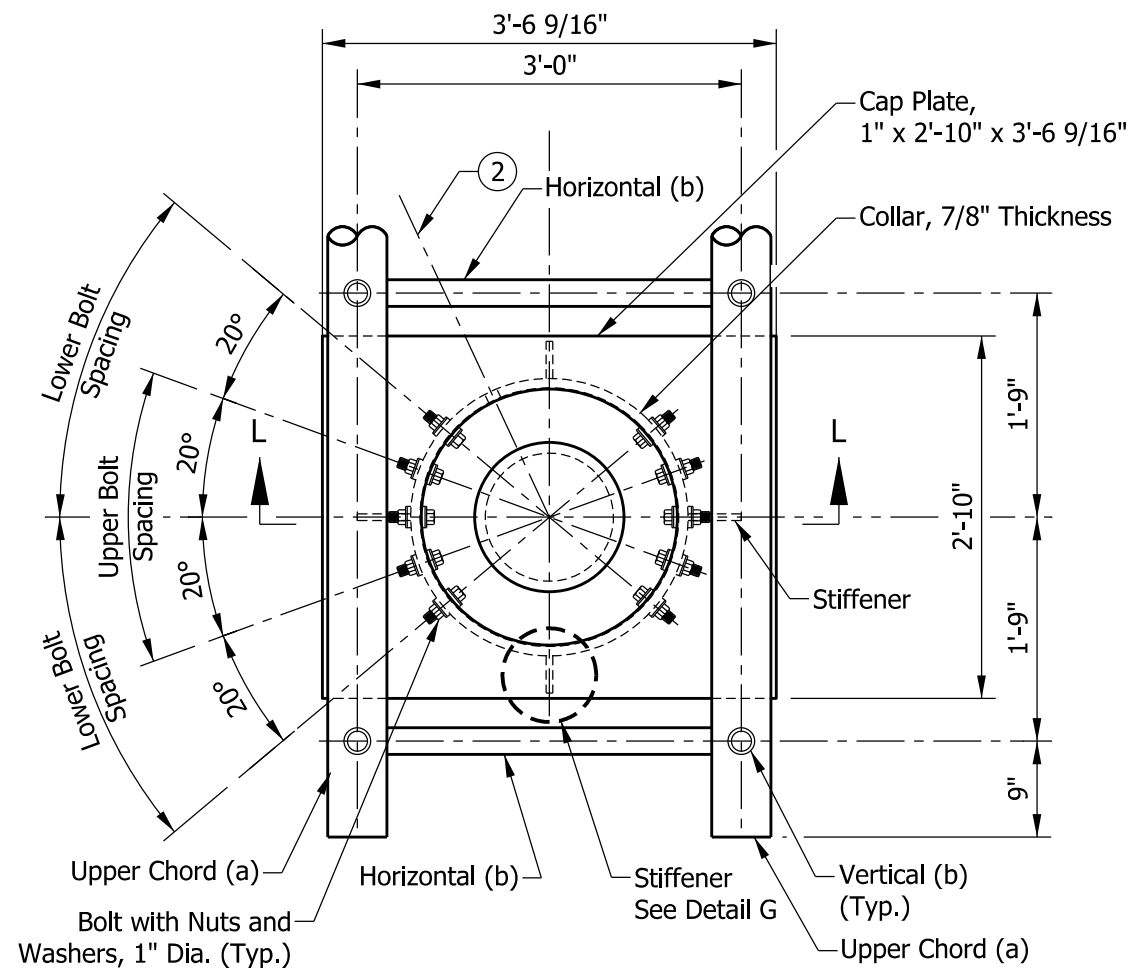


SECTION K-K

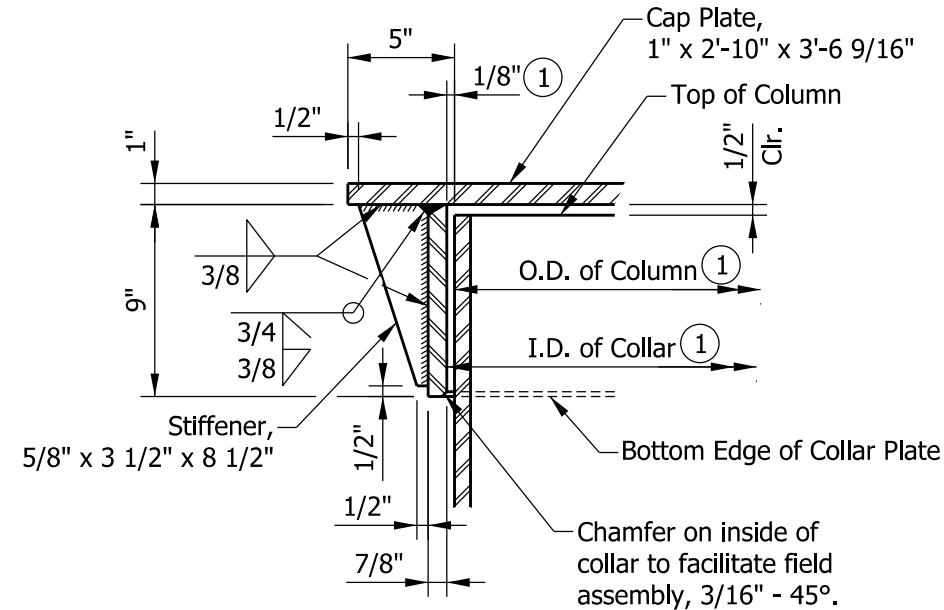
NOTES:

- ① Grind top of bottom plate if required to fully seat lower chord plate. Repair damaged galvanizing before assembly.
- ② Orient pipe toward sign. Hole diameter in column shall equal outside pipe diameter + 1/8".
- ③ After tightening lower connection bolts, fill gap with non-hardening silicone caulk suitable for exterior exposure.

INDIANA DEPARTMENT OF TRANSPORTATION	
SIGN CANTILEVER STRUCTURE QUADRI-CHORD LOWER ARM CONNECTION TO COLUMN AND WIRE OUTLET DETAIL SEPTEMBER 2013	
STANDARD DRAWING NO.	E 802-SCLS-10
	/s/ Alfredo B. Hanza 03/25/13 DESIGN STANDARDS ENGINEER DATE
	/s/ Mark A. Miller 03/27/13 CHIEF ENGINEER DATE



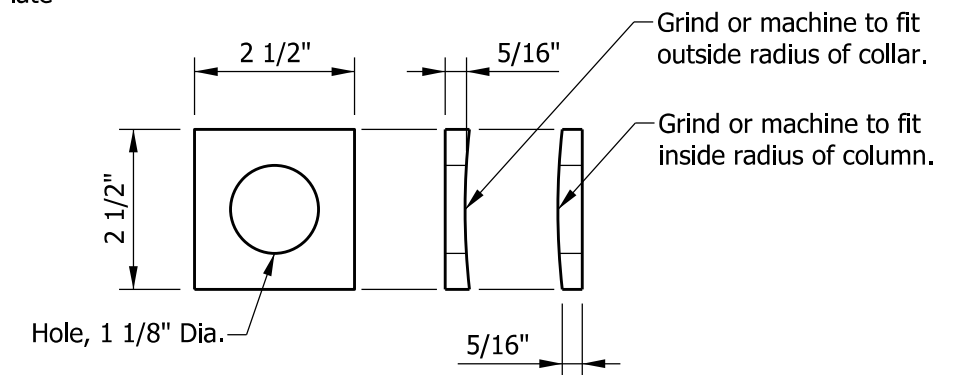
**PLAN VIEW - TOP OF COLUMN  
ABOVE UPPER CHORDS**



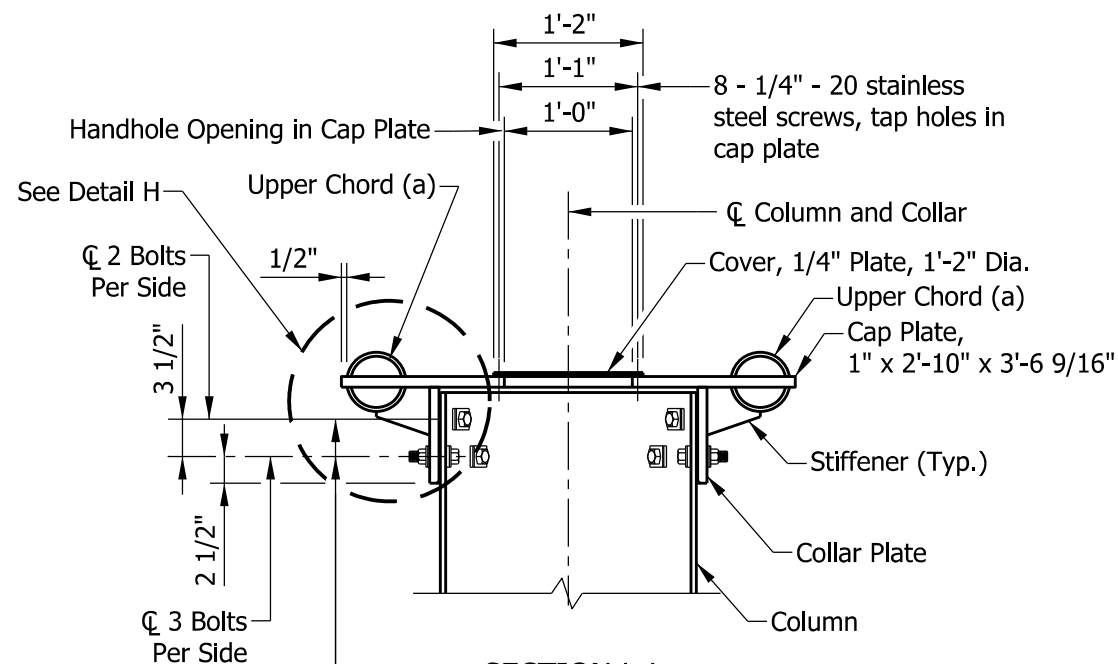
**DETAIL G**

**NOTES:**

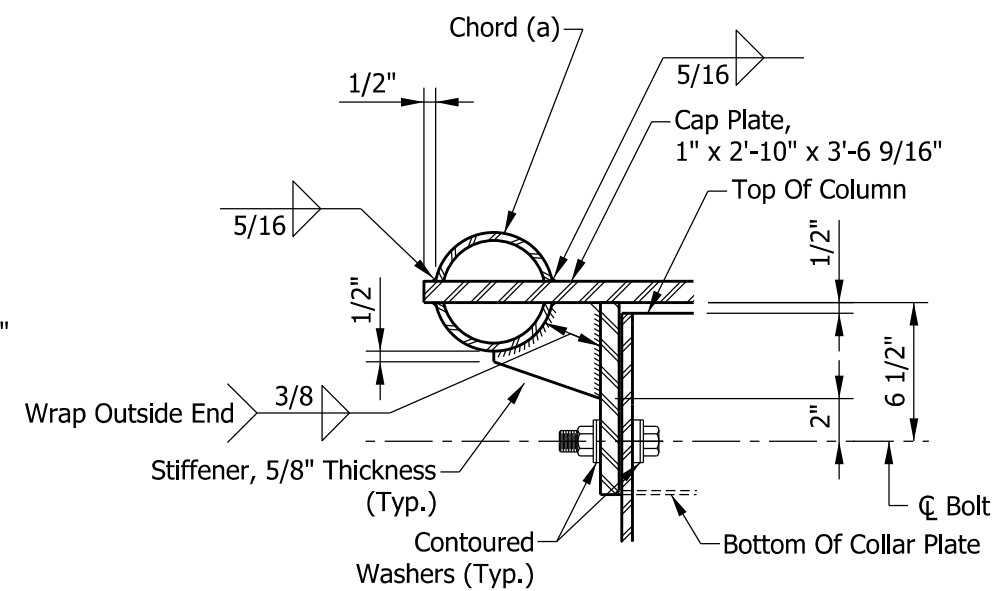
- ① After galvanizing, collar inside diameter shall equal outside diameter of galvanized column plus  $1/8" \pm 1/16"$ . Maximum gap between column and collar shall be  $1/8"$  before tightening bolts.
- ② Optional full penetration weld in collar may be made at two locations, 180° apart. X-ray or ultrasonic test (UT) 100%.
3. See Standard Drawing E 802-SCLS-08 for dimensions and member sizes.



**CONTOURED WASHER**



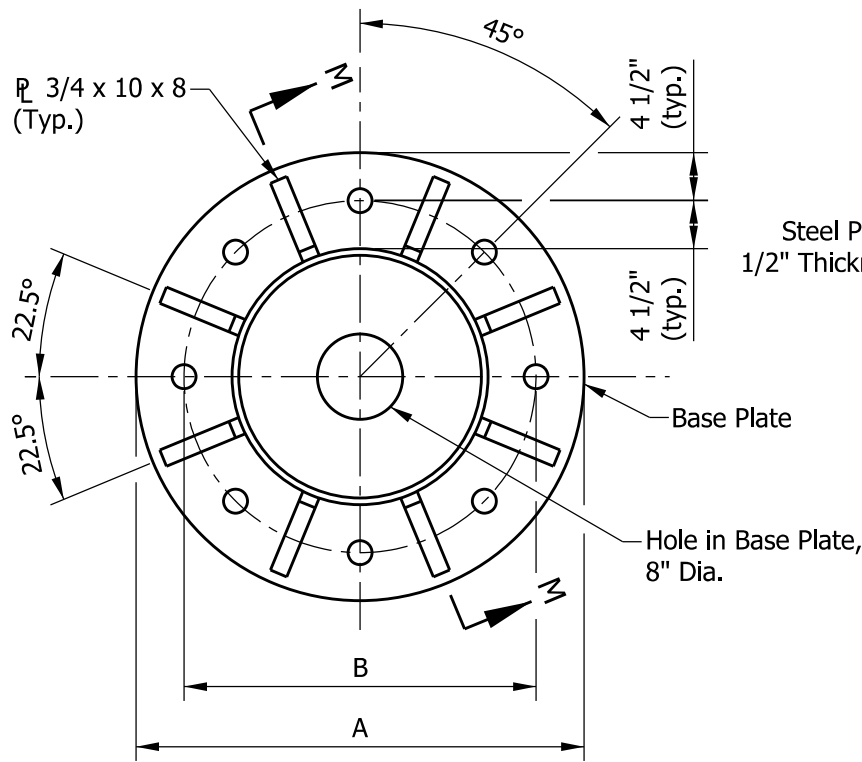
**SECTION L-L**



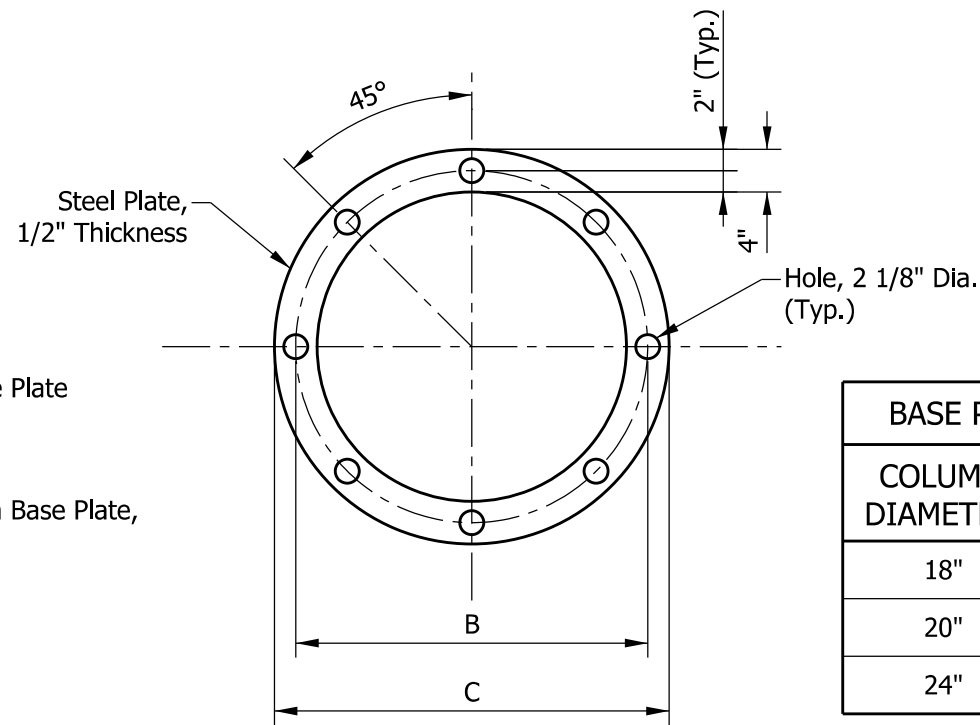
**DETAIL H**

Hole dia. in column and collar plate shall equal bolt dia. plus  $1/16"$ .

<b>INDIANA DEPARTMENT OF TRANSPORTATION</b>											
<b>SIGN CANTILEVER STRUCTURE QUADRI-CHORD UPPER ARM CONNECTION TO COLUMN</b>											
<b>SEPTEMBER 2013</b>											
<b>STANDARD DRAWING NO. E 802-SCLS-11</b>											
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;"><i>/s/ Alfredo B. Hanza</i></td> <td style="width: 30%; text-align: right;">03/26/13</td> </tr> <tr> <td>DESIGN STANDARDS ENGINEER</td> <td style="text-align: right;">DATE</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td><i>/s/ Mark A. Miller</i></td> <td style="text-align: right;">03/27/13</td> </tr> <tr> <td>CHIEF ENGINEER</td> <td style="text-align: right;">DATE</td> </tr> </table>	<i>/s/ Alfredo B. Hanza</i>	03/26/13	DESIGN STANDARDS ENGINEER	DATE			<i>/s/ Mark A. Miller</i>	03/27/13	CHIEF ENGINEER	DATE
<i>/s/ Alfredo B. Hanza</i>	03/26/13										
DESIGN STANDARDS ENGINEER	DATE										
<i>/s/ Mark A. Miller</i>	03/27/13										
CHIEF ENGINEER	DATE										



PLAN

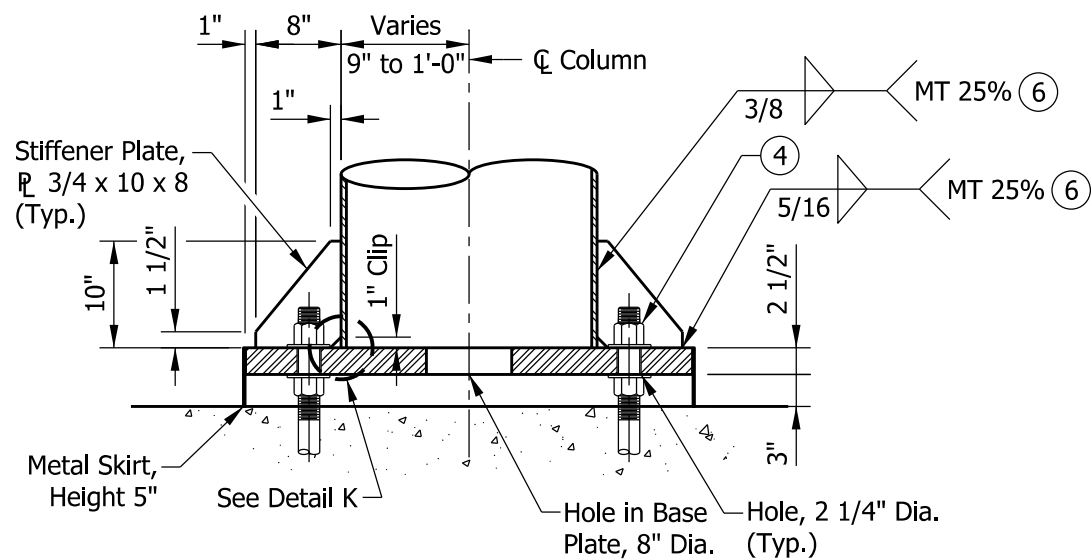


ANCHOR AND POSITIONING PLATE

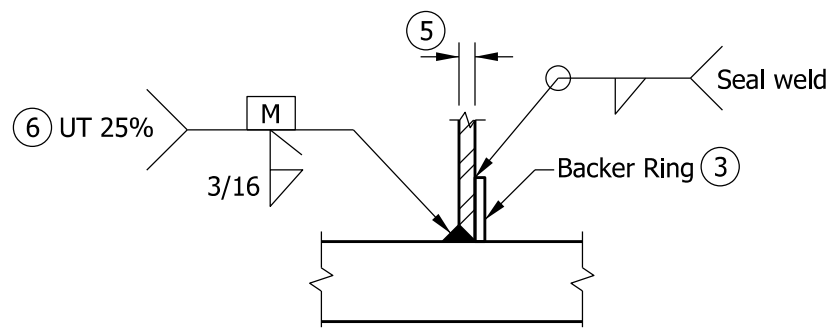
BASE PLATE DIMENSIONS			
COLUMN DIAMETER	A	B	C
18"	3'-0"	2'-3"	2'-7"
20"	3'-2"	2'-5"	2'-9"
24"	3'-6"	2'-9"	3'-1"

NOTES:

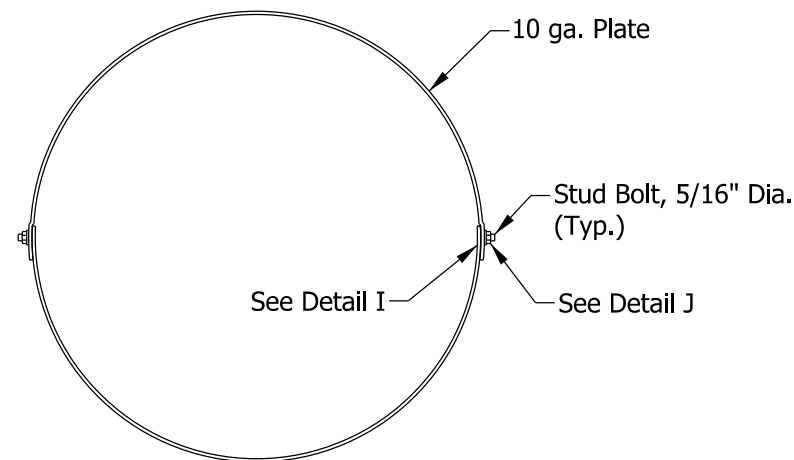
- Minimum length which shall be galvanized. Entire bolt may be galvanized at contractor's option.
- Provide uncoated nut at bottom of anchor plate. Deform thread or use chemical thread lock to secure.
- Use continuous backer ring, 5/16" x 2" minimum. Tack weld only in root area of final weld.
- Anchor bolt nuts shall be tightened against the base plate by turning the nut a minimum of 1/6 turn from snug tight condition.
- See Standard Drawings E 802-SCLS-03 and -08 for column wall thickness.
- UT - Ultrasonic Testing, 25% of entire column to base plate weld.  
MT - Magnetic Particle Testing, 25% or 1 side of 4 stiffeners.



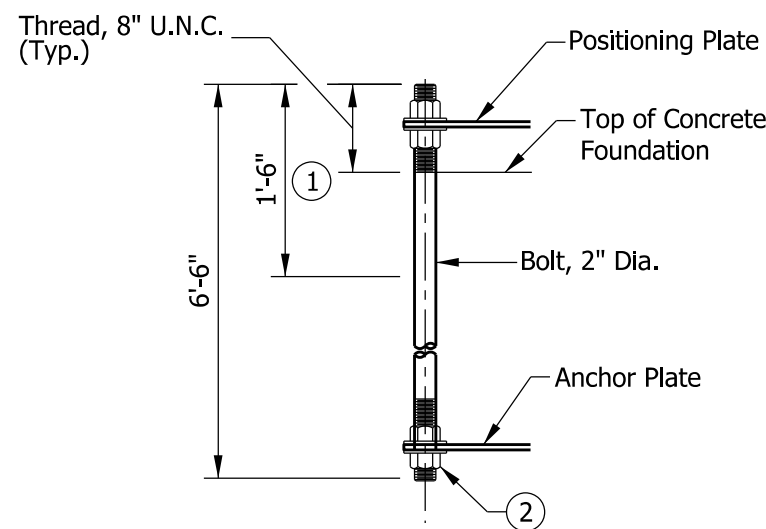
SECTION M-M



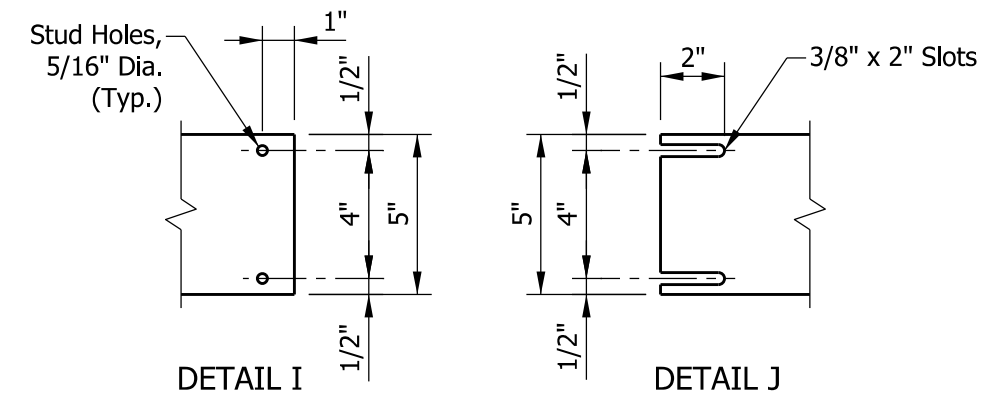
DETAIL K  
BASE PLATE WELD



SKIRT DETAIL



ANCHOR BOLT DETAIL



DETAIL I

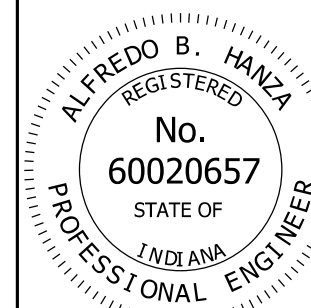
DETAIL J

INDIANA DEPARTMENT OF TRANSPORTATION

SIGN CANTILEVER STRUCTURE  
DOUBLE ARM AND QUADRI-CHORD BASE PLATE,  
ANCHOR BOLT, AND METAL SKIRT DETAILS

SEPTEMBER 2014

STANDARD DRAWING NO. E 802-SCLS-12

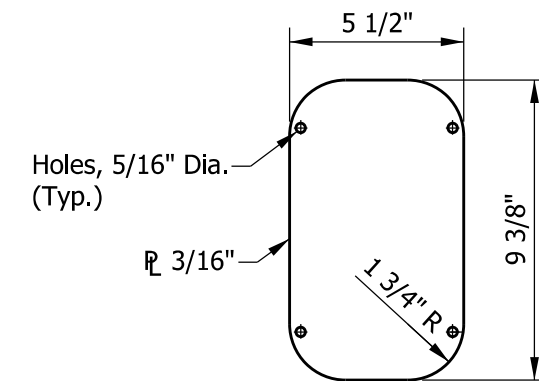
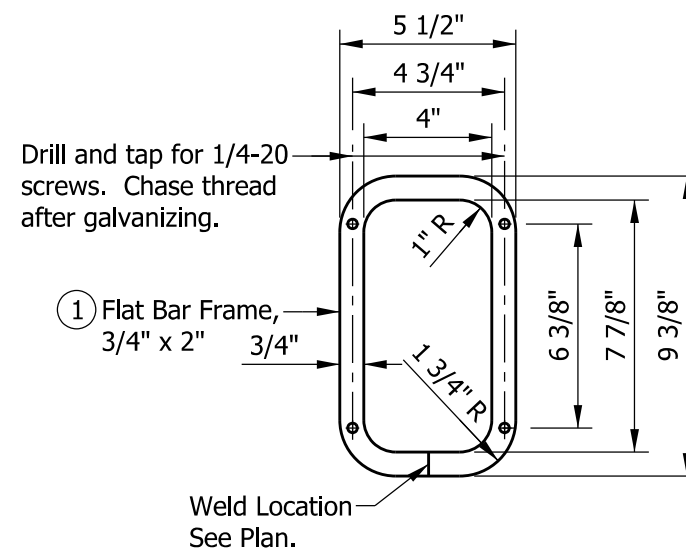
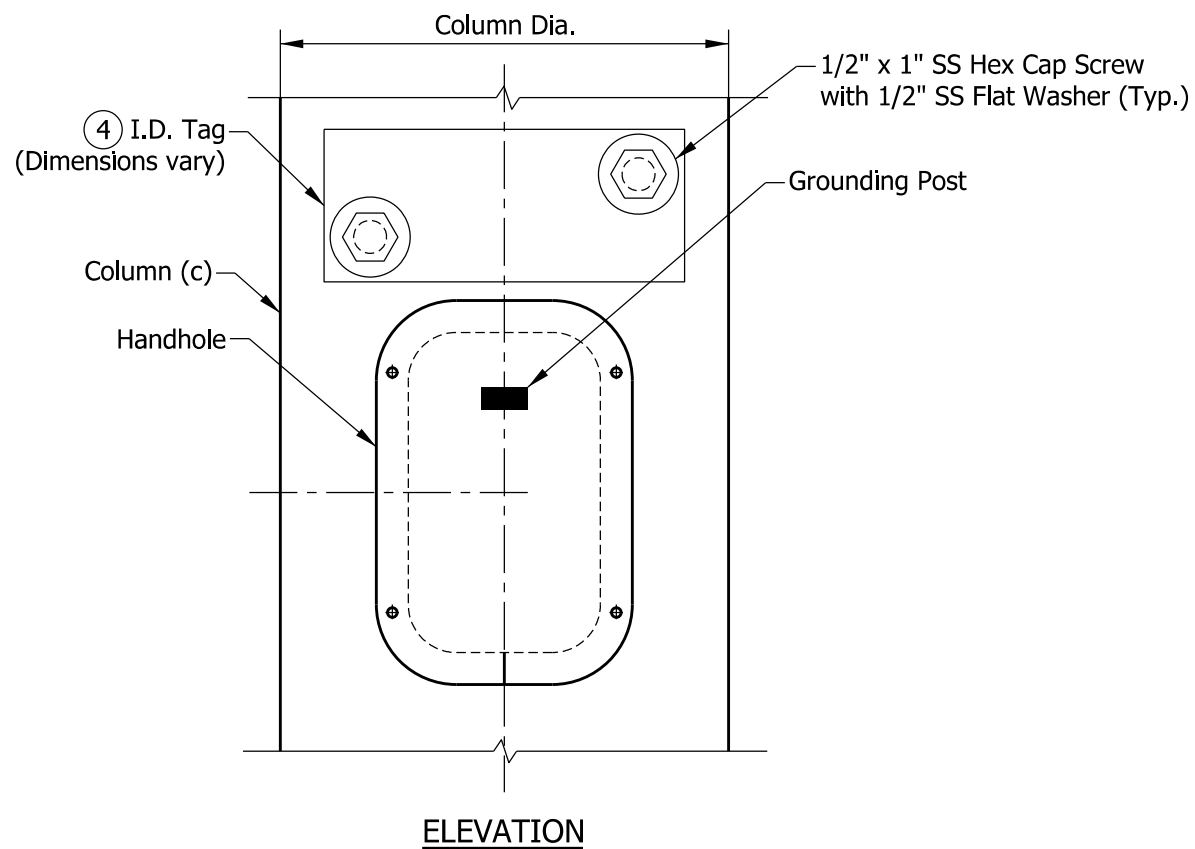
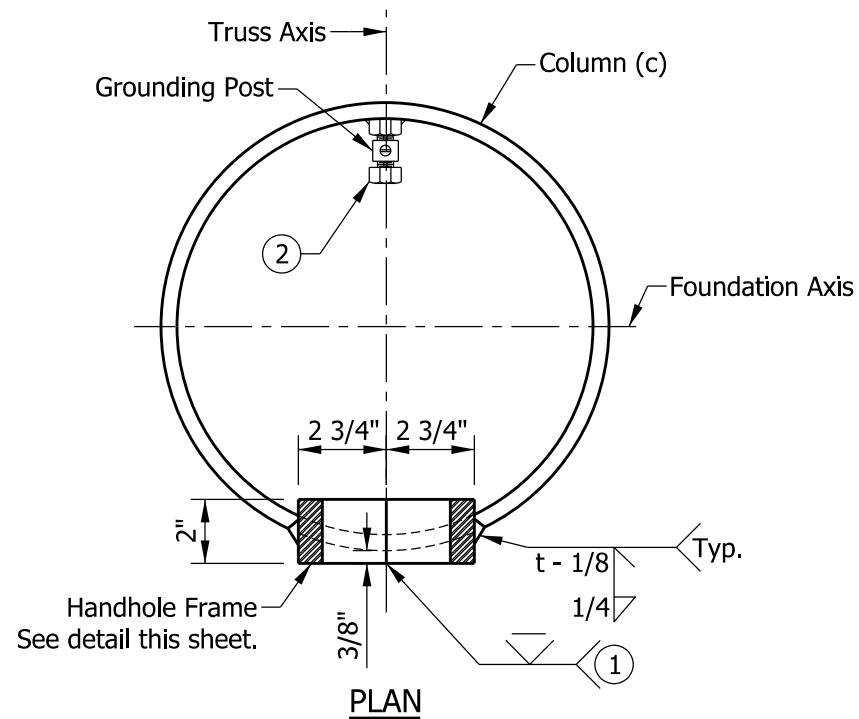


/s/ Alfredo B. Hanza 12/02/13

DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 12/05/13

CHIEF ENGINEER DATE

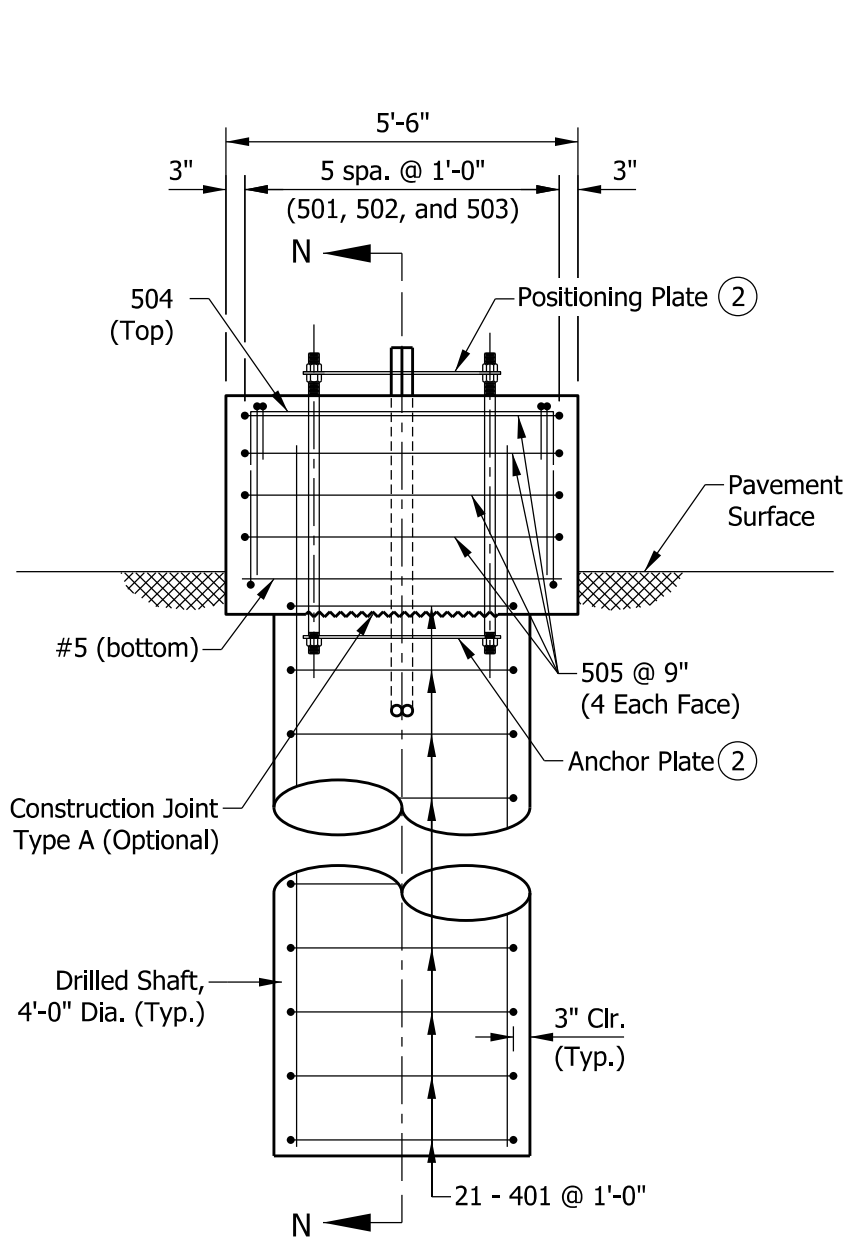


**NOTES:**

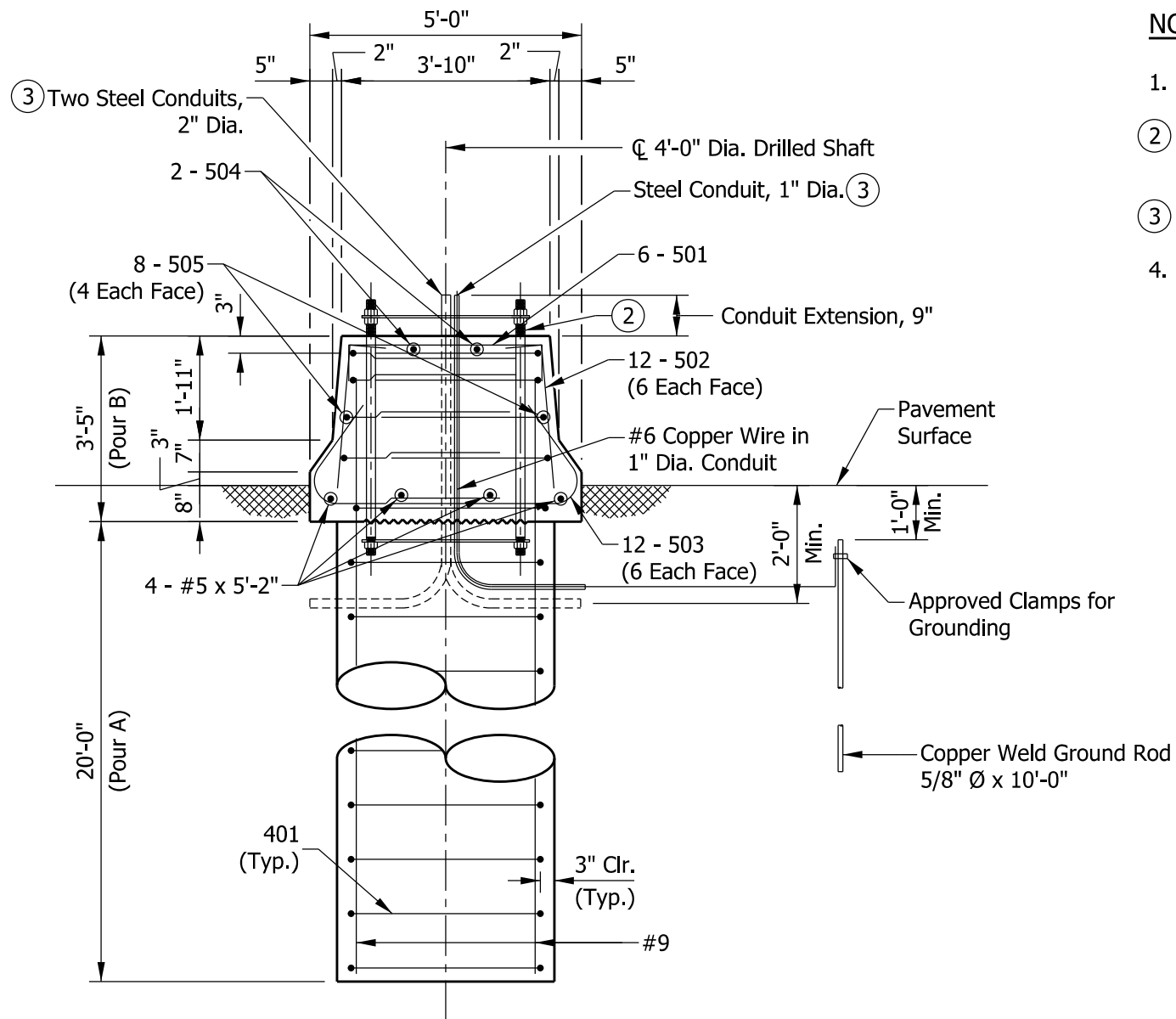
- ① In lieu of fabricated handhole frame as shown, frame may be cut from 2" plate with rolling direction vertical.
- ② See Standard Drawing E 802-SNWR-03 for grounding post details. Grounding post shall be placed on far side of support directly opposite center of handhole.
3. See Standard Drawings E 802-SCLS-02 and -07 for handhole locations.
- ④ I.D. tag is a 1/8" stainless steel plate with the following information stamped in 1/2" black letters:

Manufacturer \_\_\_\_\_, Drawing/Order # \_\_\_\_\_  
 Contract # \_\_\_\_\_, Structure Type \_\_\_\_\_  
 Fabrication Date \_\_\_\_\_, Arm Length \_\_\_\_\_  
 Pole Mounting Height \_\_\_\_\_

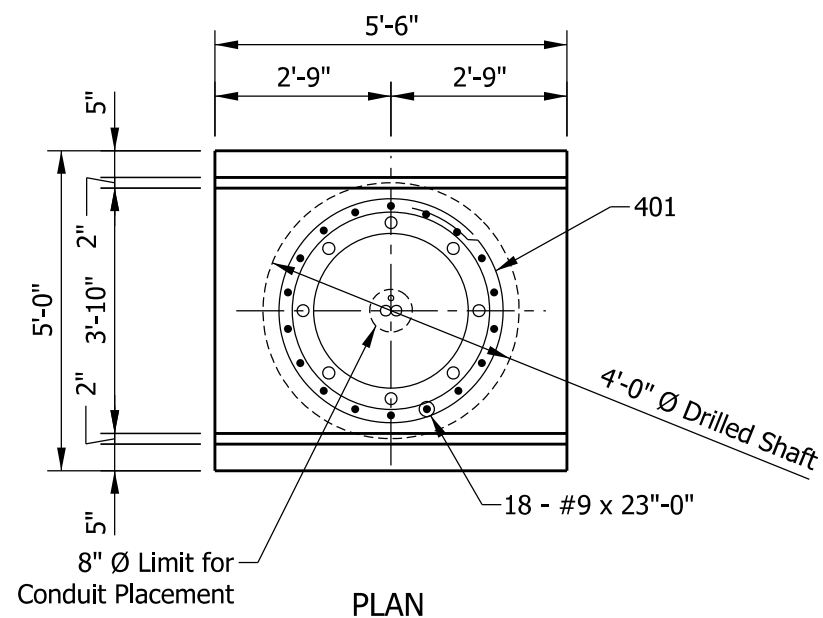
INDIANA DEPARTMENT OF TRANSPORTATION	
SIGN CANTILEVER STRUCTURE DOUBLE ARM AND QUADRI-CHORD COLUMN HANDHOLE AND I.D. TAG DETAILS SEPTEMBER 2013	
STANDARD DRAWING NO. E 802-SCLS-13	
	/s/ Alfredo B. Hanza      02/05/13 DESIGN STANDARDS ENGINEER      DATE
	/s/ Mark A. Miller      03/27/13 CHIEF ENGINEER      DATE



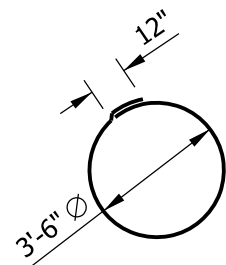
**ELEVATION**



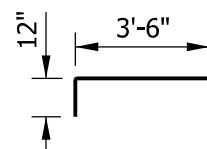
**SECTION N-N**



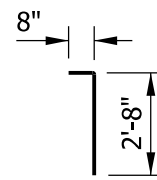
**PLAN**



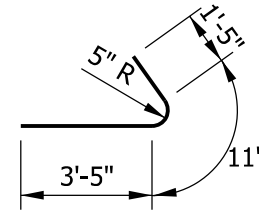
**401 X 12'-0"**



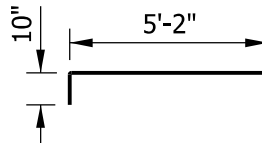
**501 X 5'-6"**



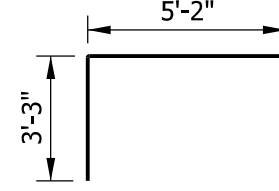
**502 X 3'-4"**



**503 X 5'-9"**



**504 X 6'-10"**



**505 X 11'-8"**

**NOTES:**

1. See Standard Drawing E 602-CCMB-03 for barrier wall width transition.
2. See Standard Drawing E 802-SCLS-12 for anchor and positioning plate and anchor bolt details.
3. Thread and cap both ends of steel conduit.
4. Surface seal top and sides of barrier railing to the pavement surface.

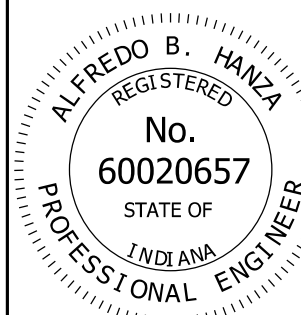
BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	18	23'-0"	
Total #9			1408 LBS
501	6	5'-6"	
502	12	3'-4"	
503	12	5'-9"	
504	2	6'-10"	
505	8	11'-8"	
#5	4	5'-2"	
Total #5			281 LBS
401	21	12'-0"	
Total #4			168 LBS
Total Epoxy-Coated Reinforcing Bars			1857 LBS
CONCRETE, CLASS A			
Pour A			9.3 CYS
Pour B			3.0 CYS
Total Concrete, Class A			12.3 CYS
MISCELLANEOUS			
Surface Seal			5.9 SYS

**INDIANA DEPARTMENT OF TRANSPORTATION**

**SIGN CANTILEVER STRUCTURE TYPE A OR B FOUNDATION AT 33" CONCRETE BARRIER**

SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-14

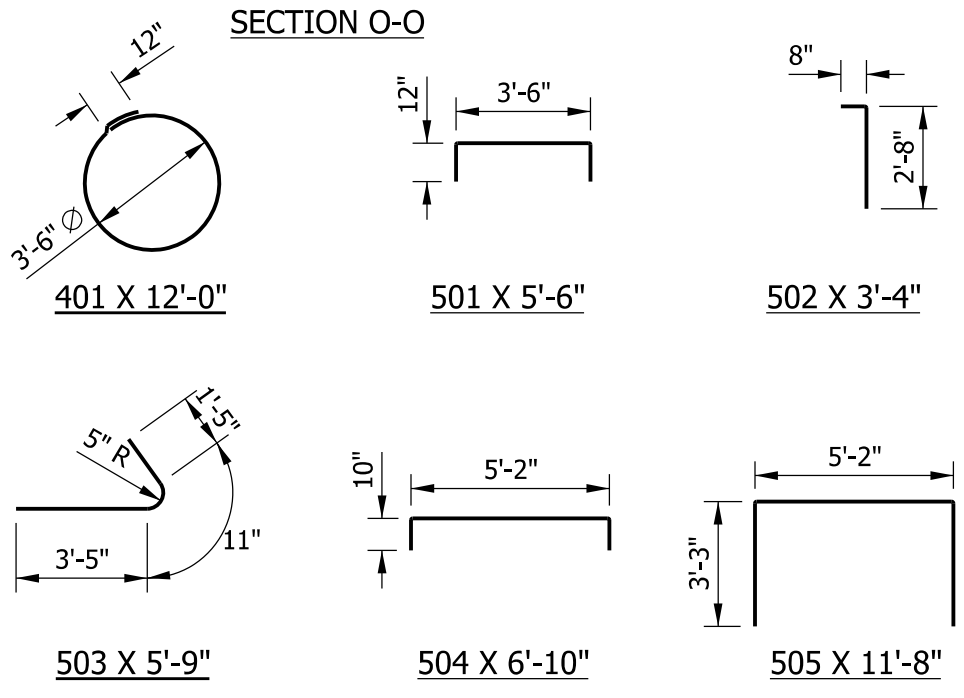
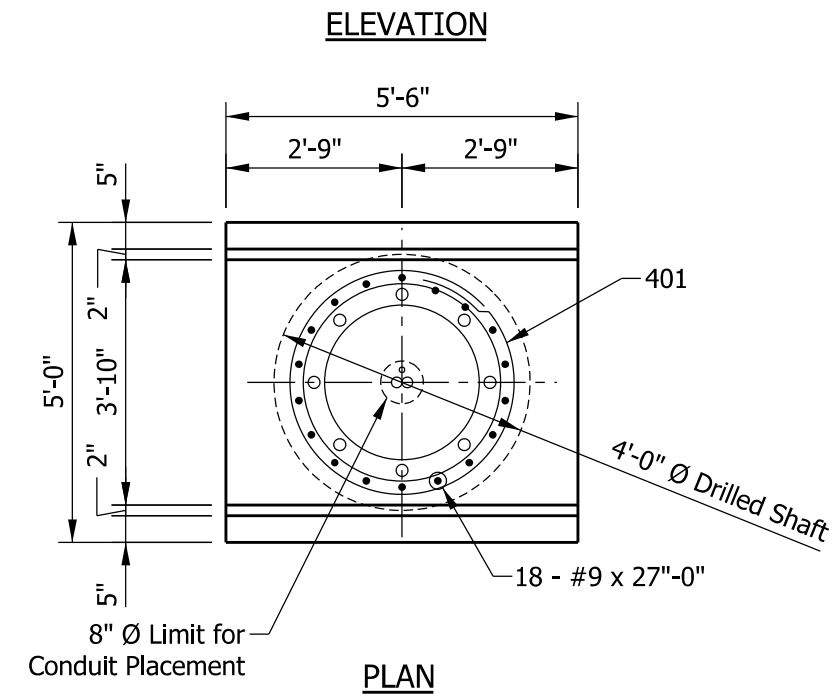
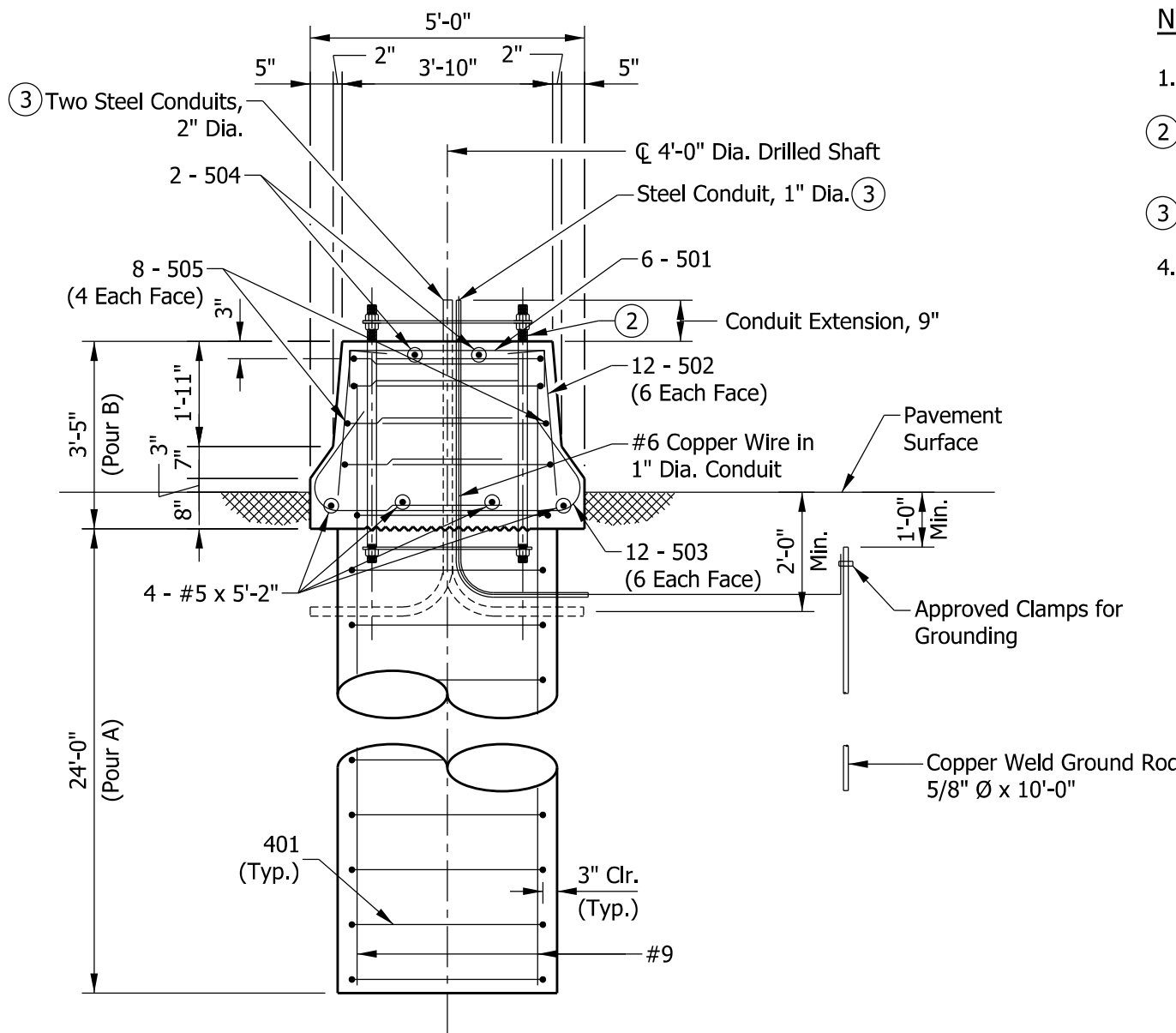
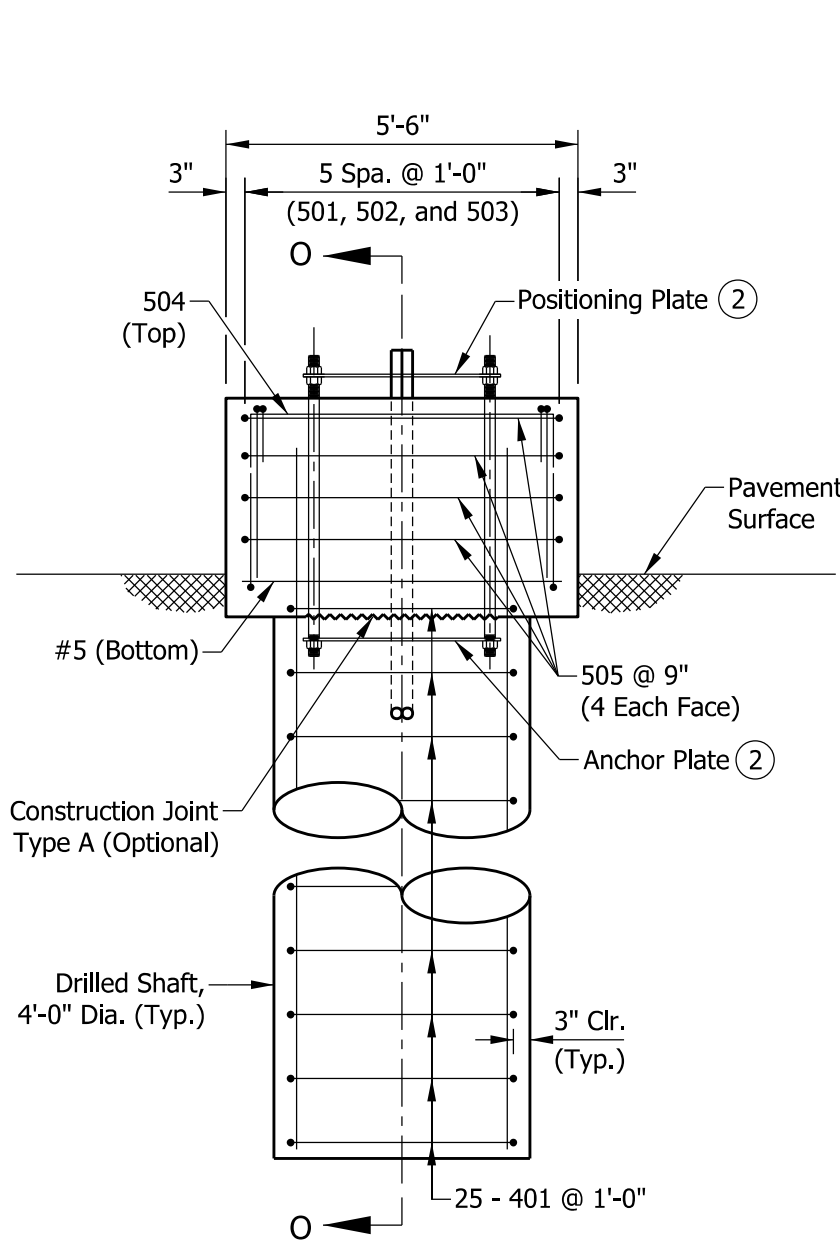


/s/ Alfredo B. Hanza 02/05/13

DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 03/27/13

CHIEF ENGINEER DATE



**NOTES:**

1. See Standard Drawing E 602-CCMB-03 for barrier wall width transition.
2. See Standard Drawing E 802-SCLS-12 for anchor and positioning plate and anchor bolt details.
3. Thread and cap both ends of steel conduit.
4. Surface seal top and sides of barrier railing to the pavement surface.

BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	18	27'-0"	
Total #9			1652 LBS
501	6	5'-6"	
502	12	3'-4"	
503	12	5'-9"	
504	2	6'-10"	
505	8	11'-8"	
#5	4	5'-2"	
Total #5			281 LBS
401	25	12'-0"	
Total #4			200 LBS
Total Epoxy-Coated Reinforcing Bars			2133 LBS
CONCRETE, CLASS A			
Pour A			11.2 CYS
Pour B			3.0 CYS
Total Concrete, Class A			14.2 CYS
MISCELLANEOUS			
Surface Seal			5.9 SYS

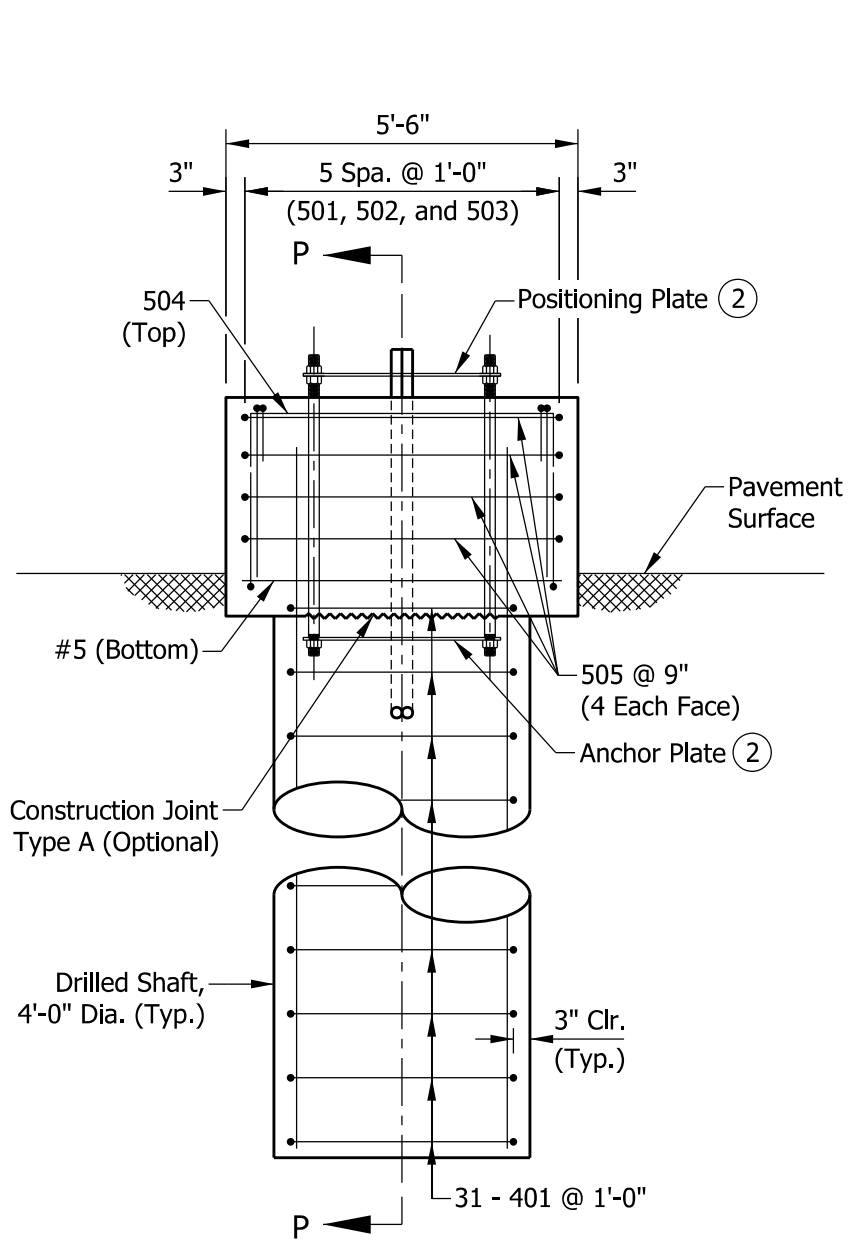
**INDIANA DEPARTMENT OF TRANSPORTATION**

**SIGN CANTILEVER STRUCTURE TYPE C, D, E, OR F FOUNDATION AT 33" CONCRETE BARRIER**

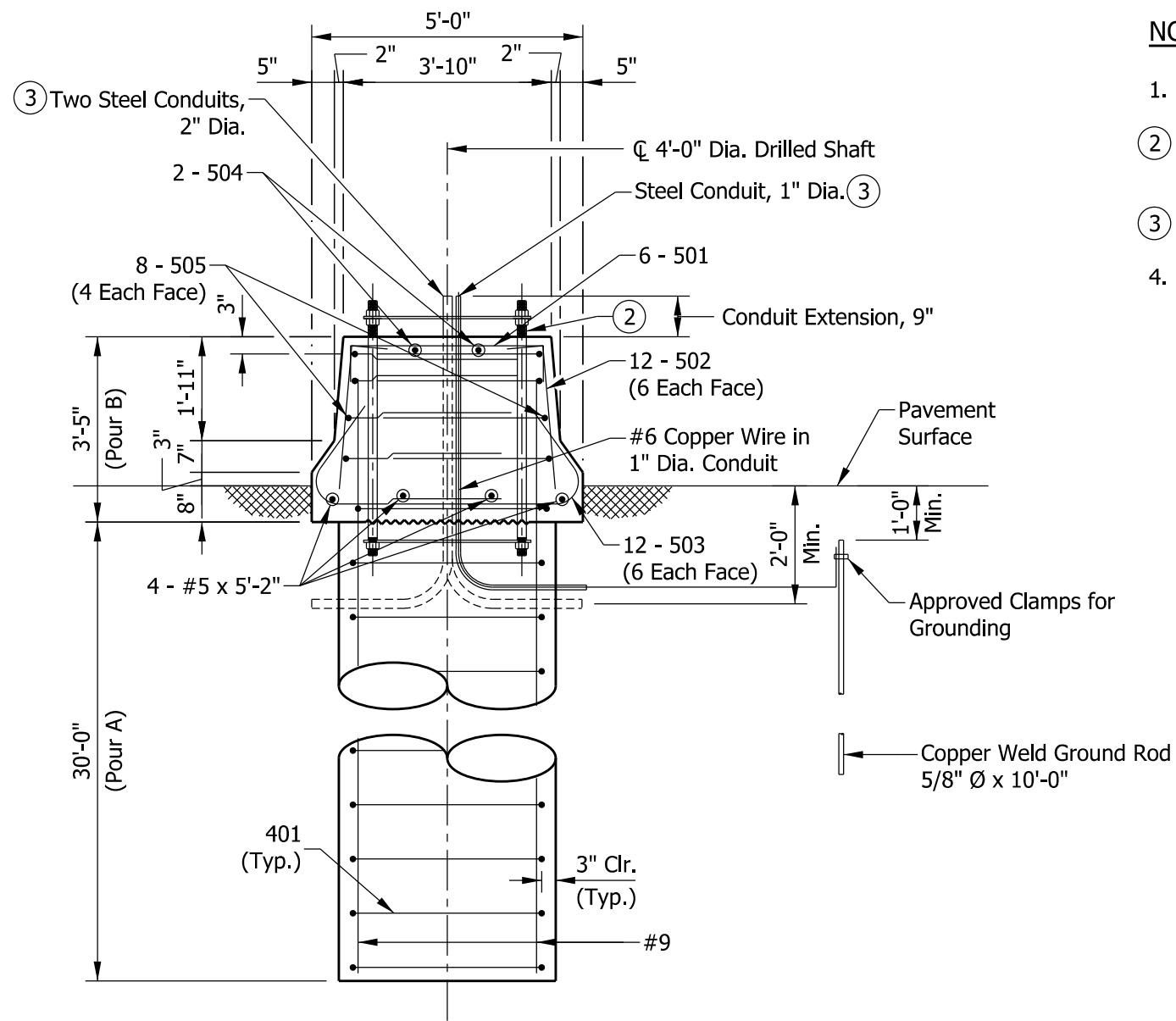
**SEPTEMBER 2013**

**STANDARD DRAWING NO. E 802-SCLS-15**

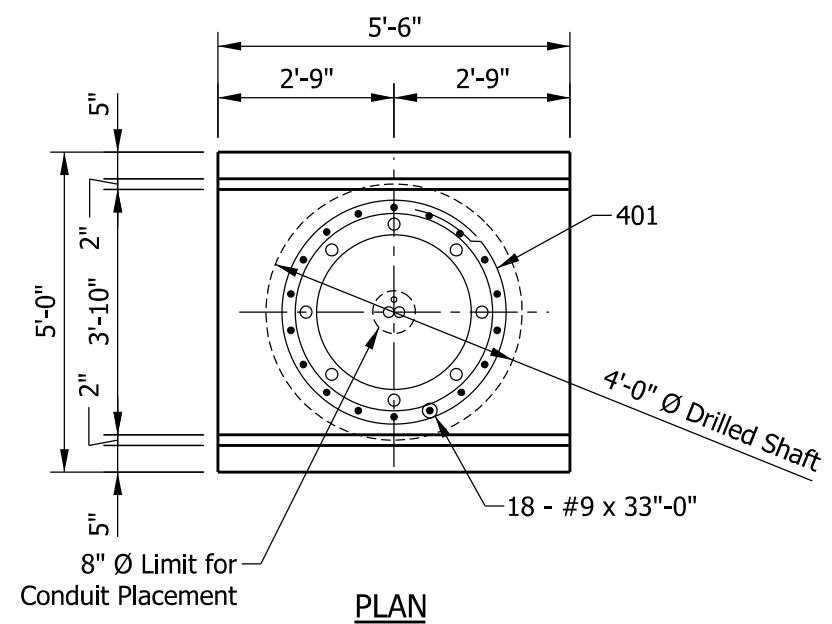
	/s/ <i>Alfredo B. Hanza</i>	02/05/13
	DESIGN STANDARDS ENGINEER	DATE
	/s/ <i>Mark A. Miller</i>	03/27/13
	CHIEF ENGINEER	DATE



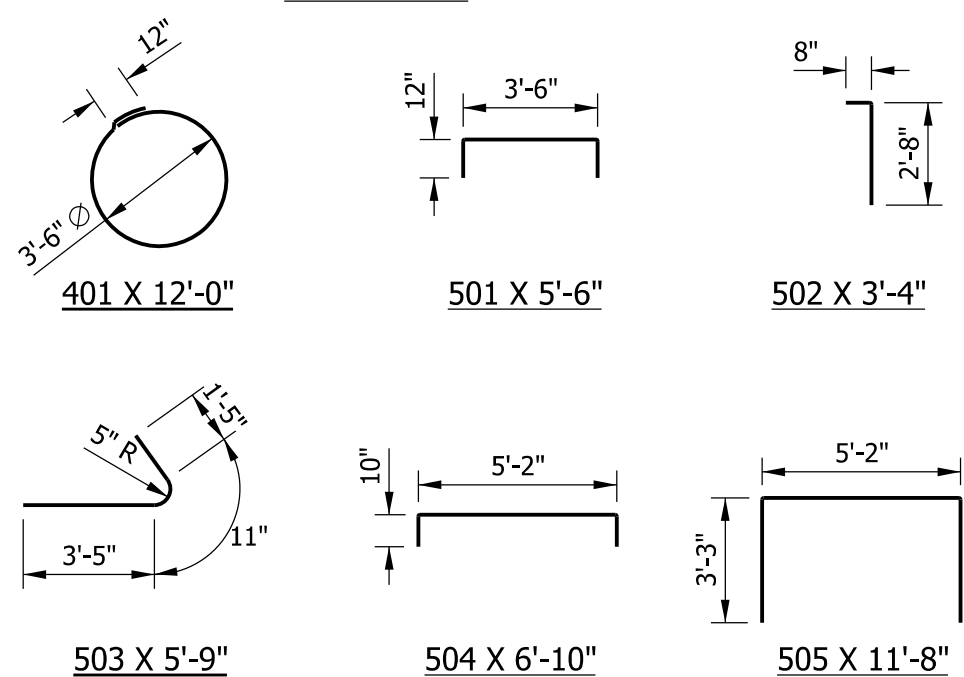
**ELEVATION**



**SECTION P-P**



**PLAN**



**NOTES:**

1. See Standard Drawing E 602-CCMB-03 for barrier wall width transition.
2. See Standard Drawing E 802-SCLS-12 for anchor and positioning plate and anchor bolt details.
3. Thread and cap both ends of steel conduit.
4. Surface seal top and sides of barrier railing to the pavement surface.

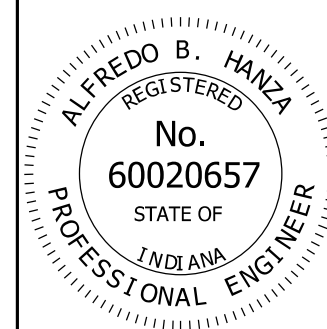
BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	18	33'-0"	
Total #9			2020 LBS
501	6	5'-6"	
502	12	3'-4"	
503	12	5'-9"	
504	2	6'-10"	
505	8	11'-8"	
#5	4	5'-2"	
Total #5			281 LBS
401	31	12'-0"	
Total #4			248 LBS
Total Epoxy-Coated Reinforcing Bars			2549 LBS
CONCRETE, CLASS A			
Pour A			14.0 CYS
Pour B			3.0 CYS
Total Concrete, Class A			17.0 CYS
MISCELLANEOUS			
Surface Seal			5.9 SYS

**INDIANA DEPARTMENT OF TRANSPORTATION**

**SIGN CANTILEVER STRUCTURE TYPE G, H, OR I FOUNDATION AT 33" CONCRETE BARRIER**

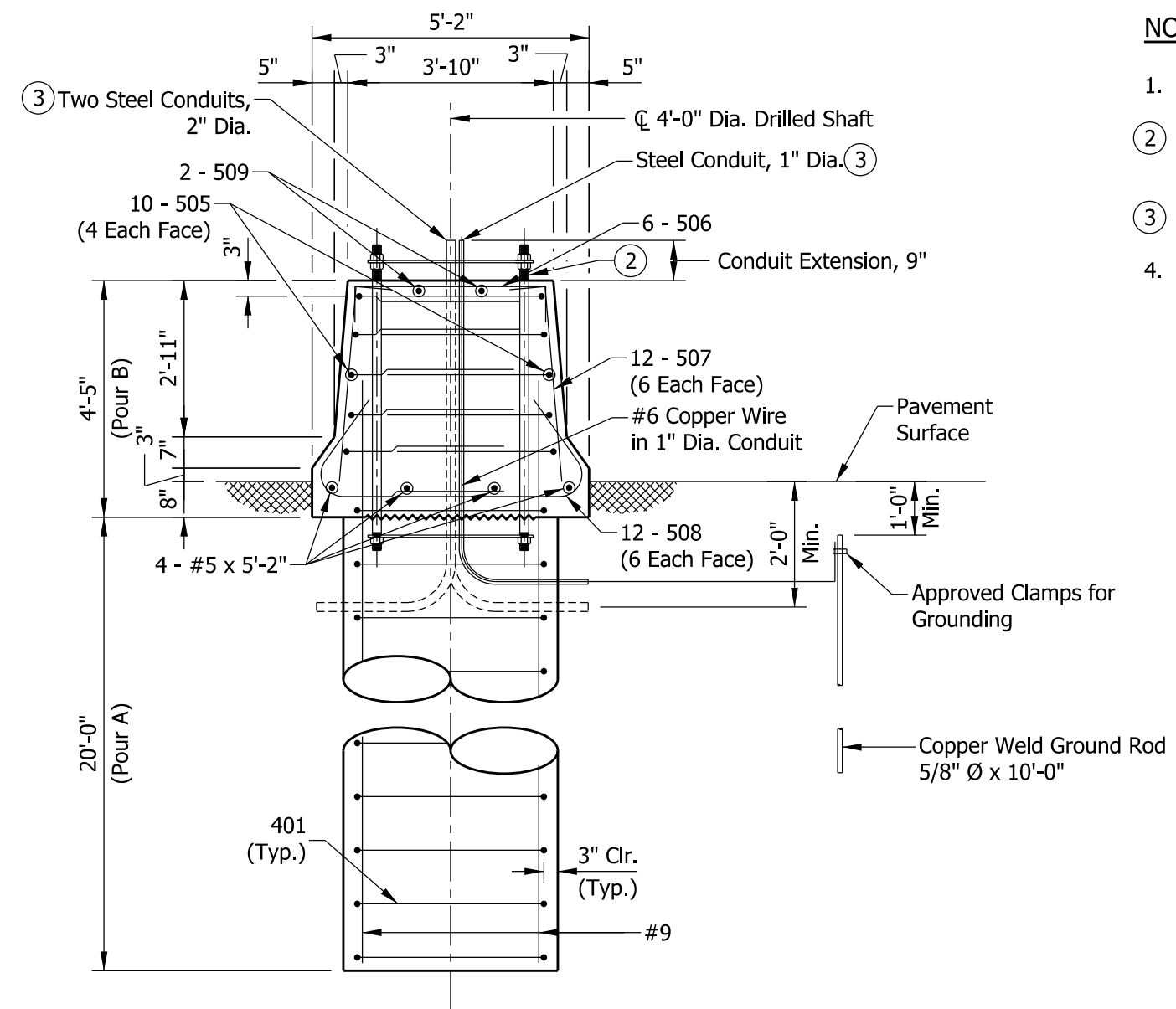
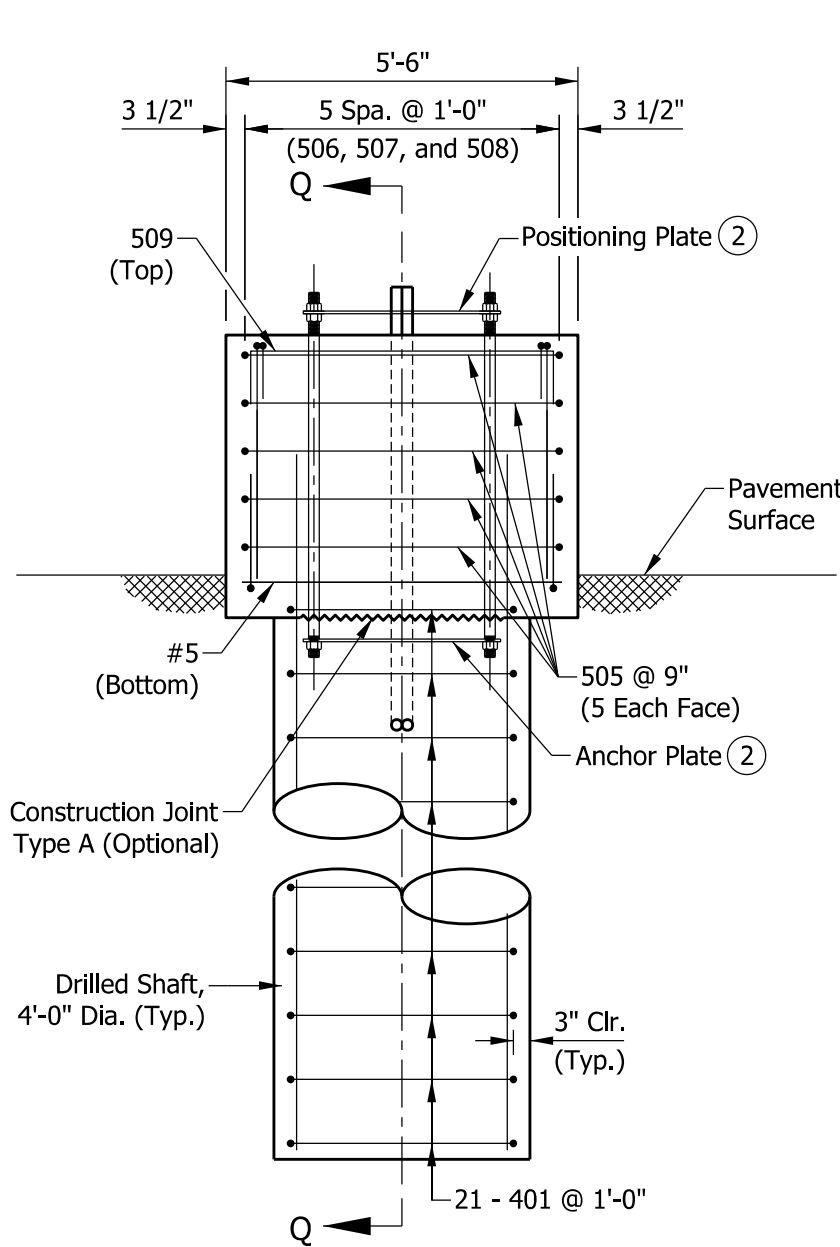
SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-16



/s/ Alfredo B. Hanza	03/26/13
DESIGN STANDARDS ENGINEER	DATE
/s/ Mark A. Miller	03/27/13
CHIEF ENGINEER	DATE

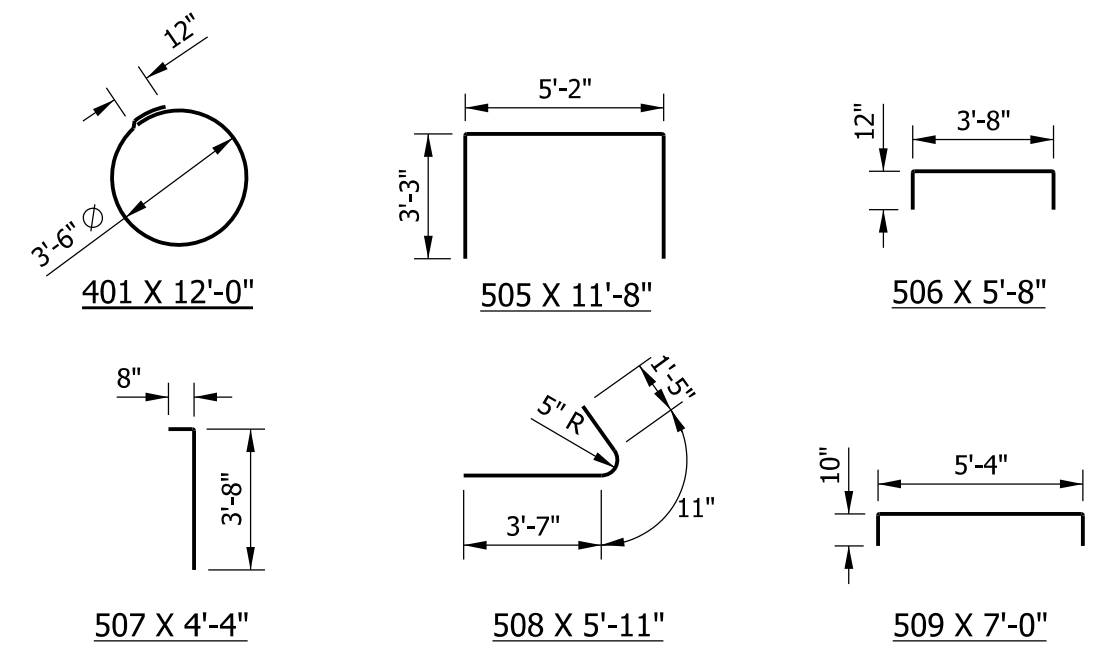
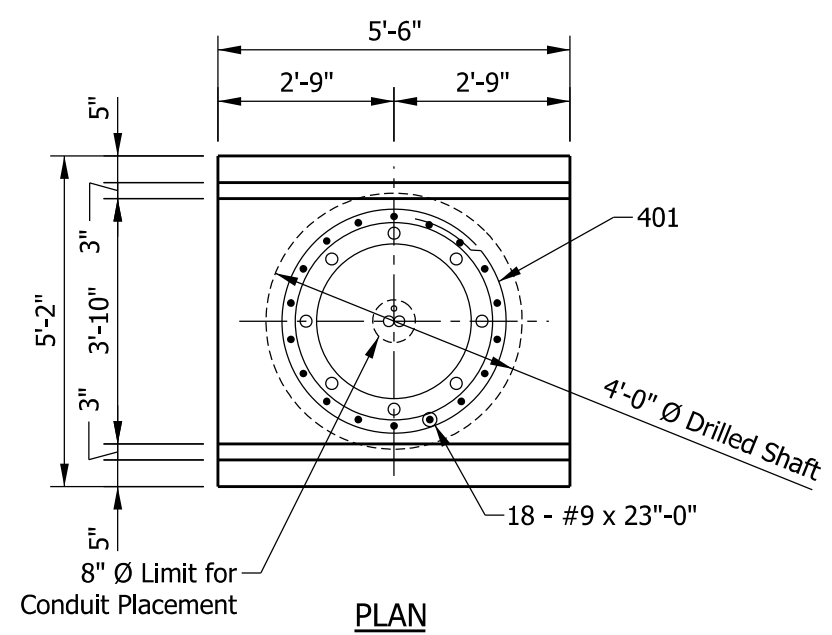




**NOTES:**

1. See Standard Drawing E 602-CCMB-03 for barrier wall width transition.
2. See Standard Drawing E 802-SCLS-12 for anchor and positioning plate and anchor bolt details.
3. Thread and cap both ends of steel conduit.
4. Surface seal top and sides of barrier railing to the pavement surface.

BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	18	23'-0"	
Total #9			1408 LBS
505	10	11'-8"	
506	6	5'-8"	
507	12	4'-4"	
508	12	5'-11"	
509	2	7'-0"	
#5	4	5'-2"	
Total #5			322 LBS
401	21	12'-0"	
Total #4			168 LBS
Total Epoxy-Coated Reinforcing Bars			1898 LBS
CONCRETE, CLASS A			
Pour A			9.3 CYS
Pour B			4.0 CYS
Total Concrete, Class A			13.3 CYS
MISCELLANEOUS			
Surface Seal			7.1 SYS



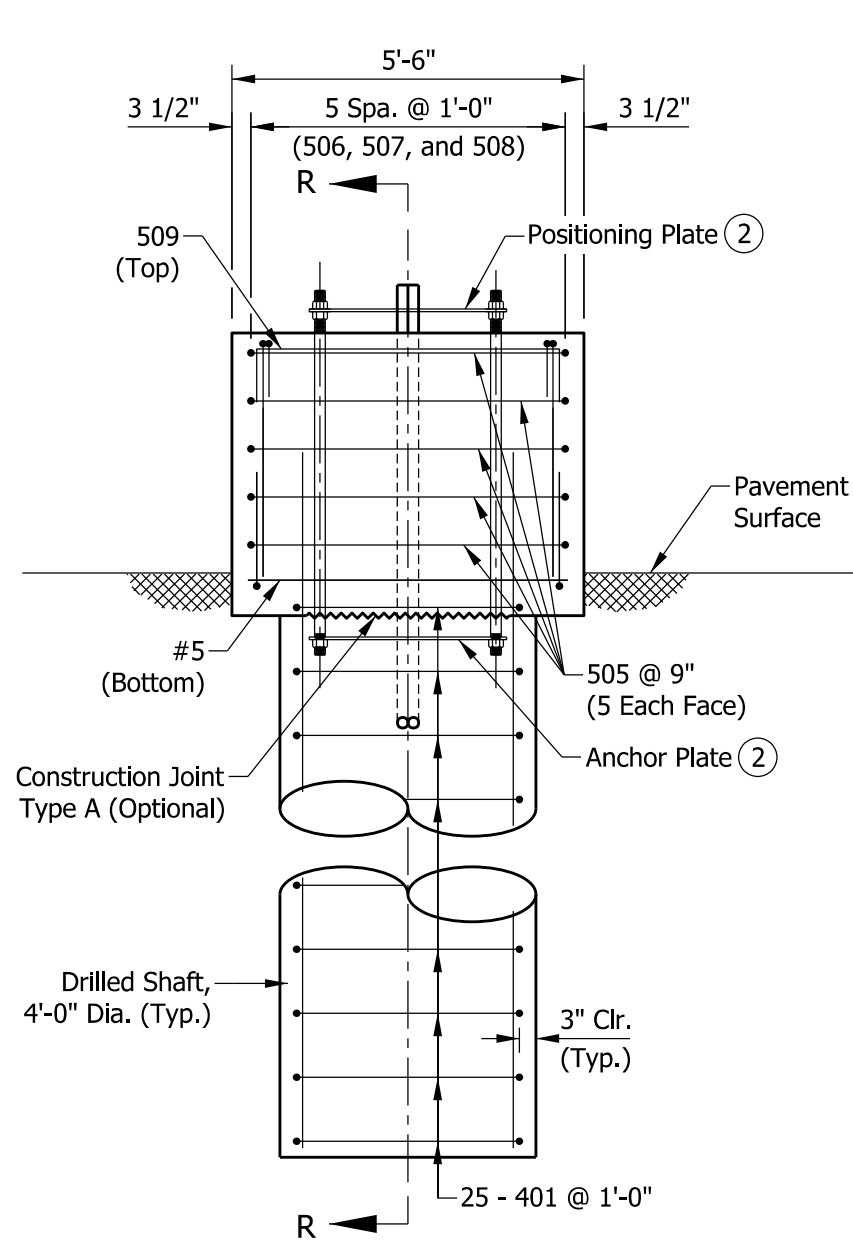
INDIANA DEPARTMENT OF TRANSPORTATION

SIGN CANTILEVER STRUCTURE TYPE A OR B  
FOUNDATION AT 45" CONCRETE BARRIER

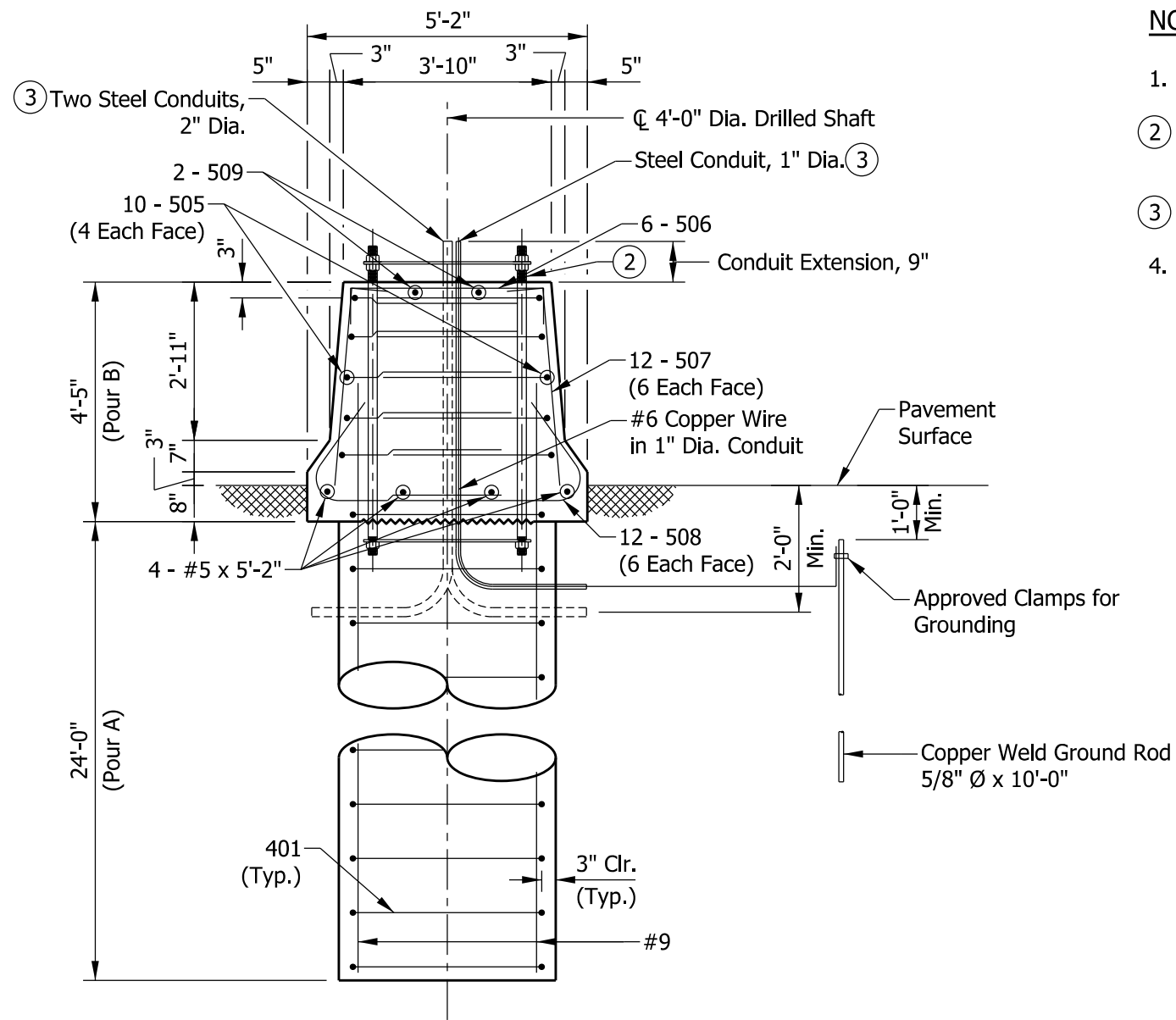
SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-17

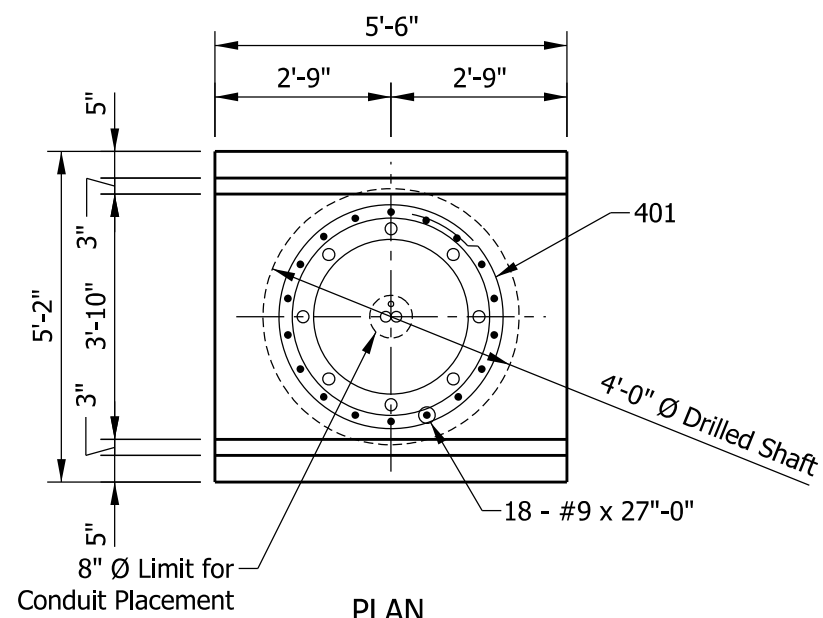
	/s/ Alfredo B. Hanza	02/05/13
	DESIGN STANDARDS ENGINEER	DATE
	/s/ Mark A. Miller	03/27/13
	CHIEF ENGINEER	DATE



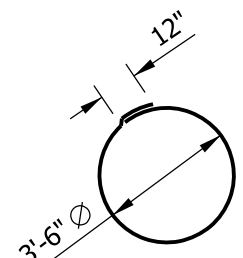
ELEVATION



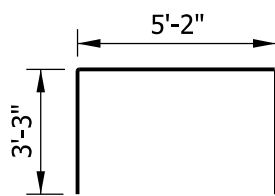
SECTION R-R



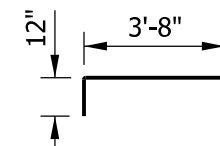
PLAN



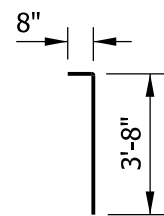
401 X 12'-0"



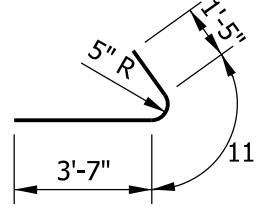
505 X 11'-8"



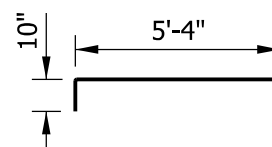
506 X 5'-8"



507 X 4'-4"



508 X 5'-11"



509 X 7'-0"

NOTES:

1. See Standard Drawing E 602-CCMB-03 for barrier wall width transition.
2. See Standard Drawing E 802-SCLS-12 for anchor and positioning plate and anchor bolt details.
3. Thread and cap both ends of steel conduit.
4. Surface seal top and sides of barrier railing to the pavement surface.

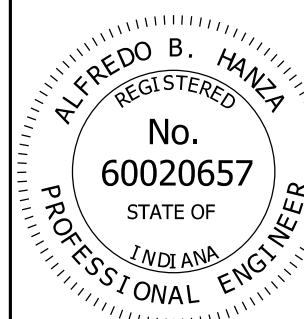
BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	18	27'-0"	
Total #9			1652 LBS
505	10	11'-8"	
506	6	5'-8"	
507	12	4'-4"	
508	12	5'-11"	
509	2	7'-0"	
#5	4	5'-2"	
Total #5			322 LBS
401	25	12'-0"	
Total #4			200 LBS
Total Epoxy-Coated Reinforcing Bars			1848 LBS
CONCRETE, CLASS A			
Pour A			11.2 CYS
Pour B			4.0 CYS
Total Concrete, Class A			15.2 CYS
MISCELLANEOUS			
Surface Seal			7.1 SYS

INDIANA DEPARTMENT OF TRANSPORTATION

SIGN CANTILEVER STRUCTURE TYPE C, D, E, OR F  
FOUNDATION AT 45" CONCRETE BARRIER

SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-18

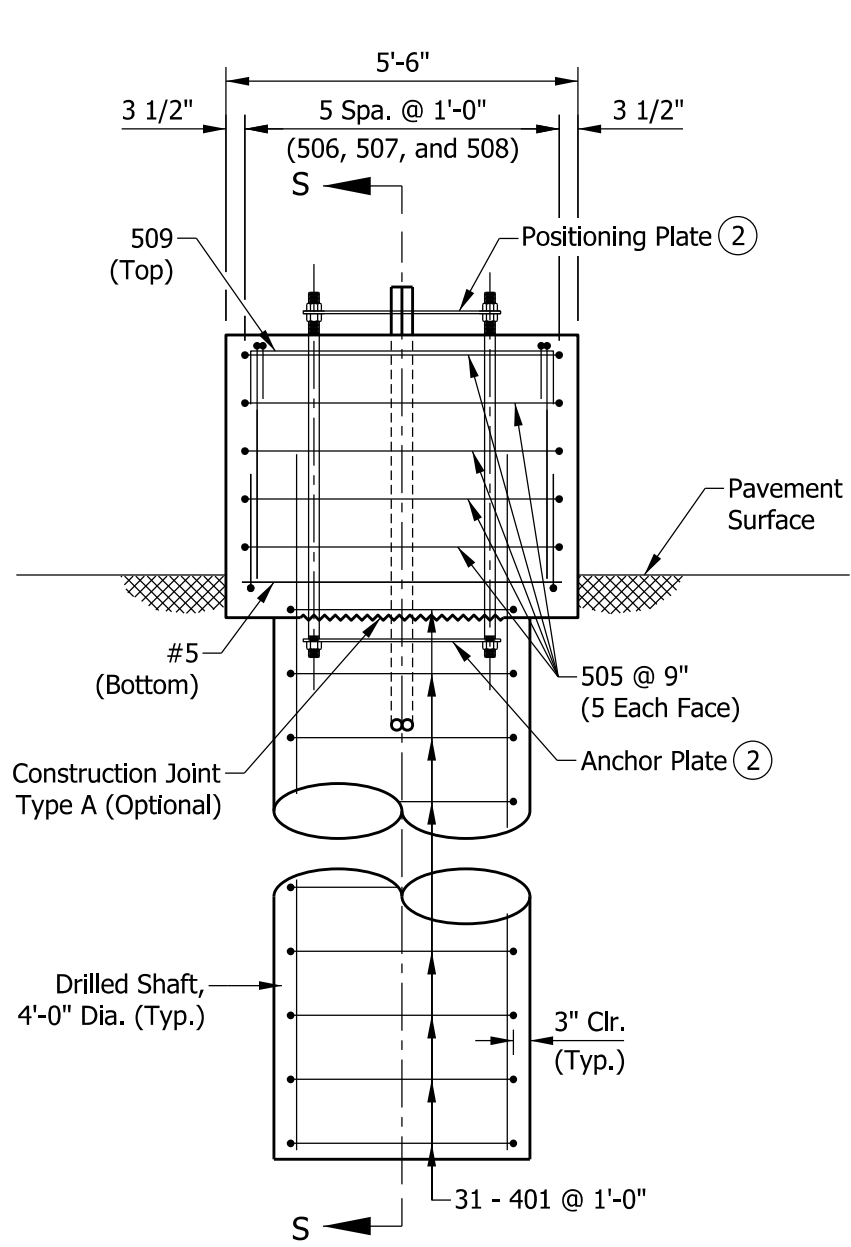


/s/ Alfredo B. Hanza 02/05/13

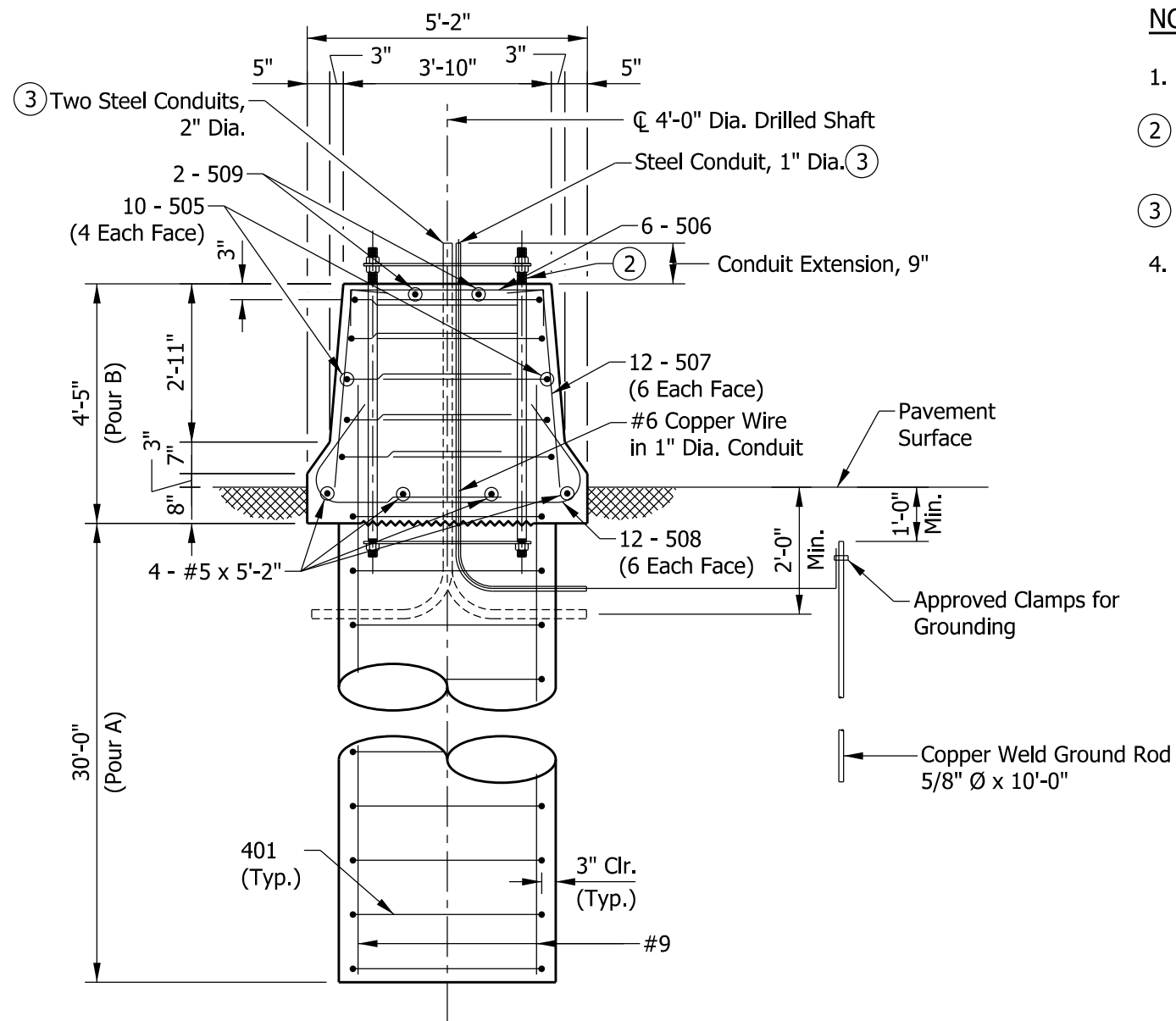
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 03/27/13

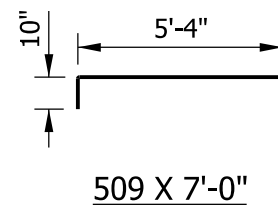
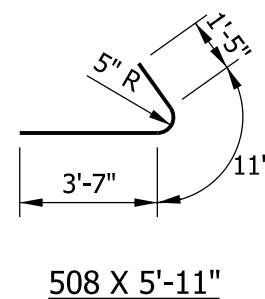
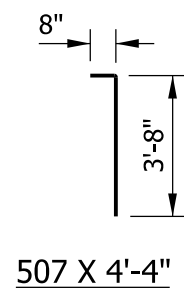
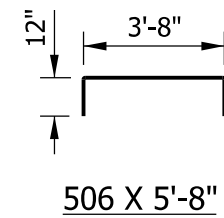
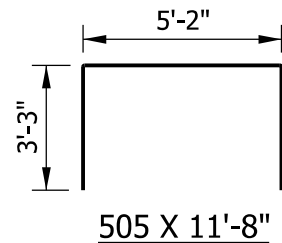
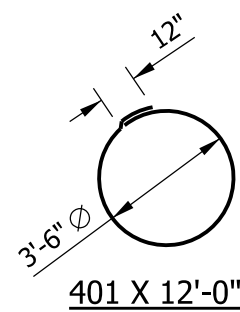
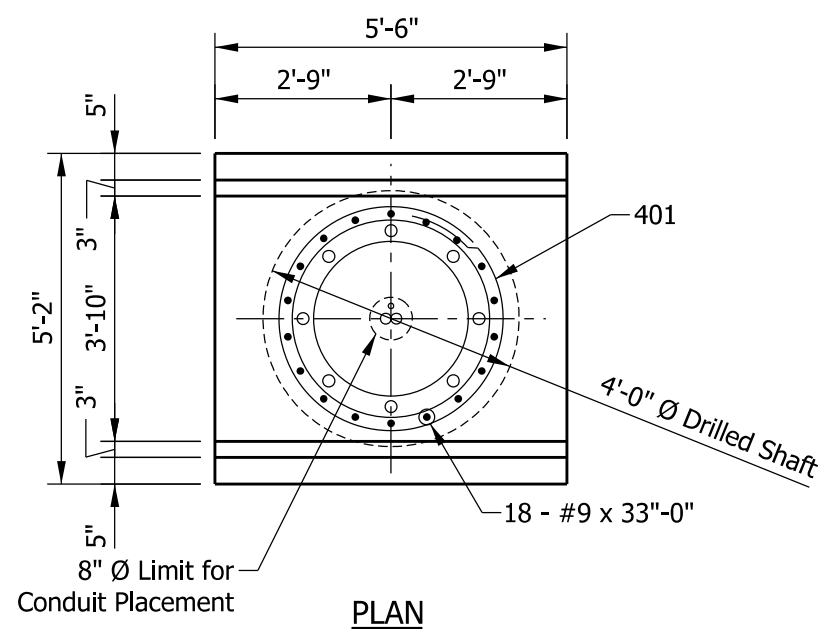
CHIEF ENGINEER DATE



ELEVATION



SECTION S-S



NOTES:

1. See Standard Drawing E 602-CCMB-03 for barrier wall width transition.
2. See Standard Drawing E 802-SCLS-12 for anchor and positioning plate and anchor bolt details.
3. Thread and cap both ends of steel conduit.
4. Surface seal top and sides of barrier railing to the pavement surface.

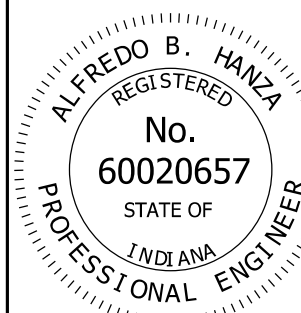
BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	18	33'-0"	
Total #9			2020 LBS
505	10	11'-8"	
506	6	5'-8"	
507	12	4'-4"	
508	12	5'-11"	
509	2	7'-0"	
#5	4	5'-2"	
Total #5			322 LBS
401	31	12'-0"	
Total #4			248 LBS
Total Epoxy-Coated Reinforcing Bars			2698 LBS
CONCRETE, CLASS A			
Pour A			13.9 CYS
Pour B			4.0 CYS
Total Concrete, Class A			17.9 CYS
MISCELLANEOUS			
Surface Seal			7.1 SYS

INDIANA DEPARTMENT OF TRANSPORTATION

SIGN CANTILEVER STRUCTURE TYPE G, H, OR I  
FOUNDATION AT 45" CONCRETE BARRIER

SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-19

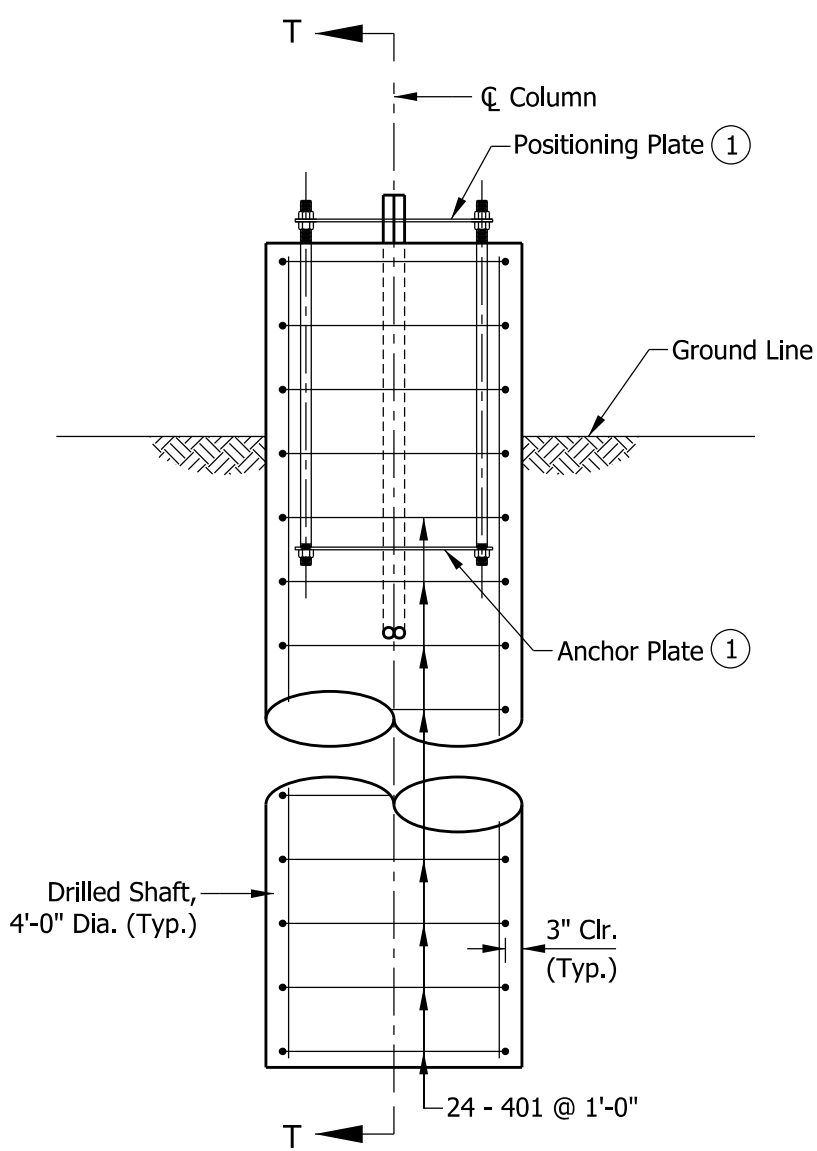


/s/ Alfredo B. Hanza 02/05/13

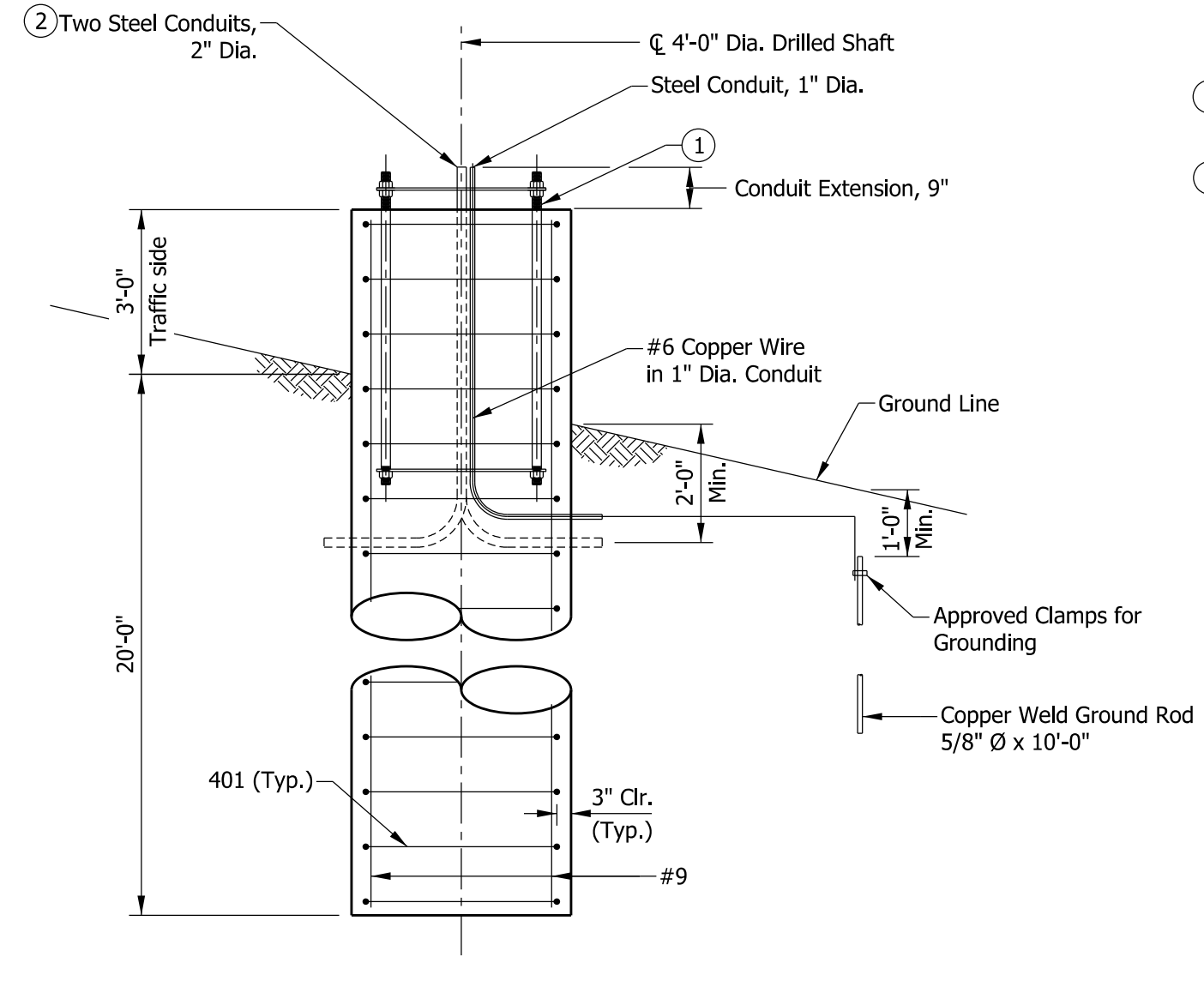
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 03/27/13

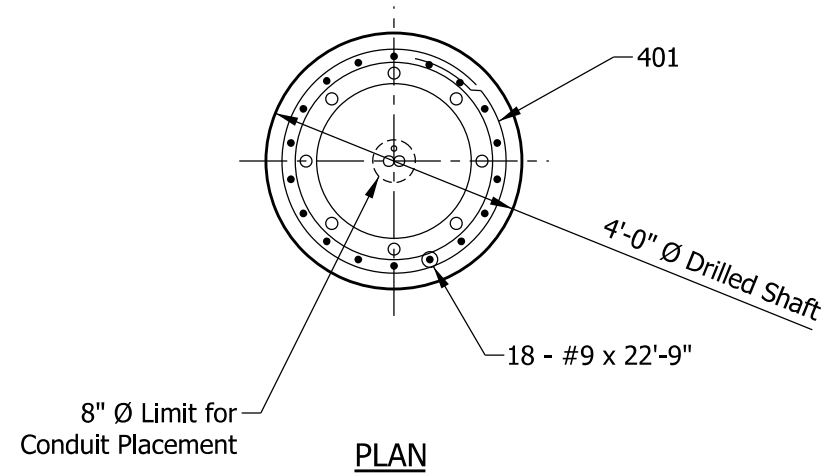
CHIEF ENGINEER DATE



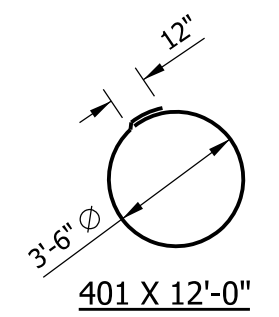
**ELEVATION**



**SECTION T-T**



**PLAN**



**401 X 12'-0"**

**NOTES:**

- ① See Standard Drawing E 802-SCLS-12 for anchor and positioning plate and anchor bolt details.
- ② Thread and cap both ends of steel conduit.
- 3. Surface seal top and sides of foundation to the ground surface.

BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	18	22'-9"	
Total #9			1392 LBS
401	24	12'-0"	
Total #4			192 LBS
Total Epoxy-Coated Reinforcing Bars			1584 LBS
MISCELLANEOUS			
Concrete, Class A			10.7 CYS
Surface Seal			4.3 SYS

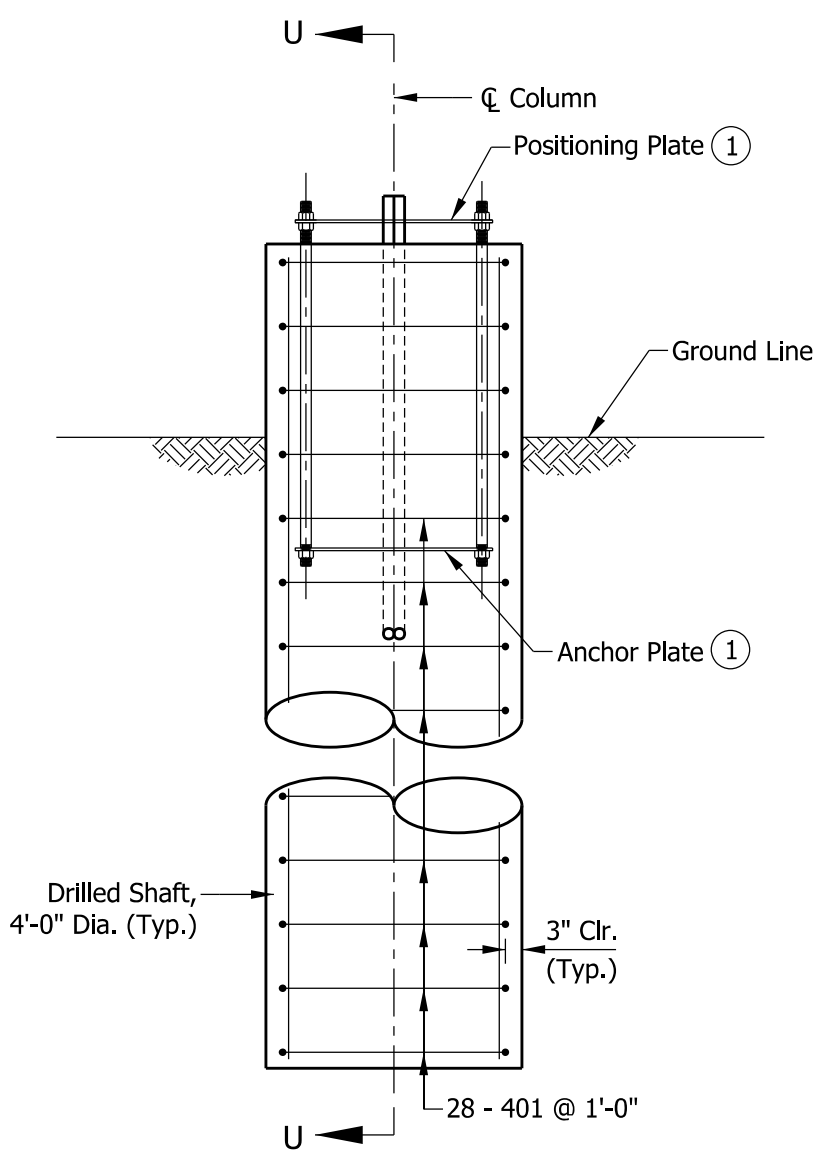
**INDIANA DEPARTMENT OF TRANSPORTATION**

**SIGN CANTILEVER STRUCTURE TYPE A OR B  
FOUNDATION, 36" HEIGHT**

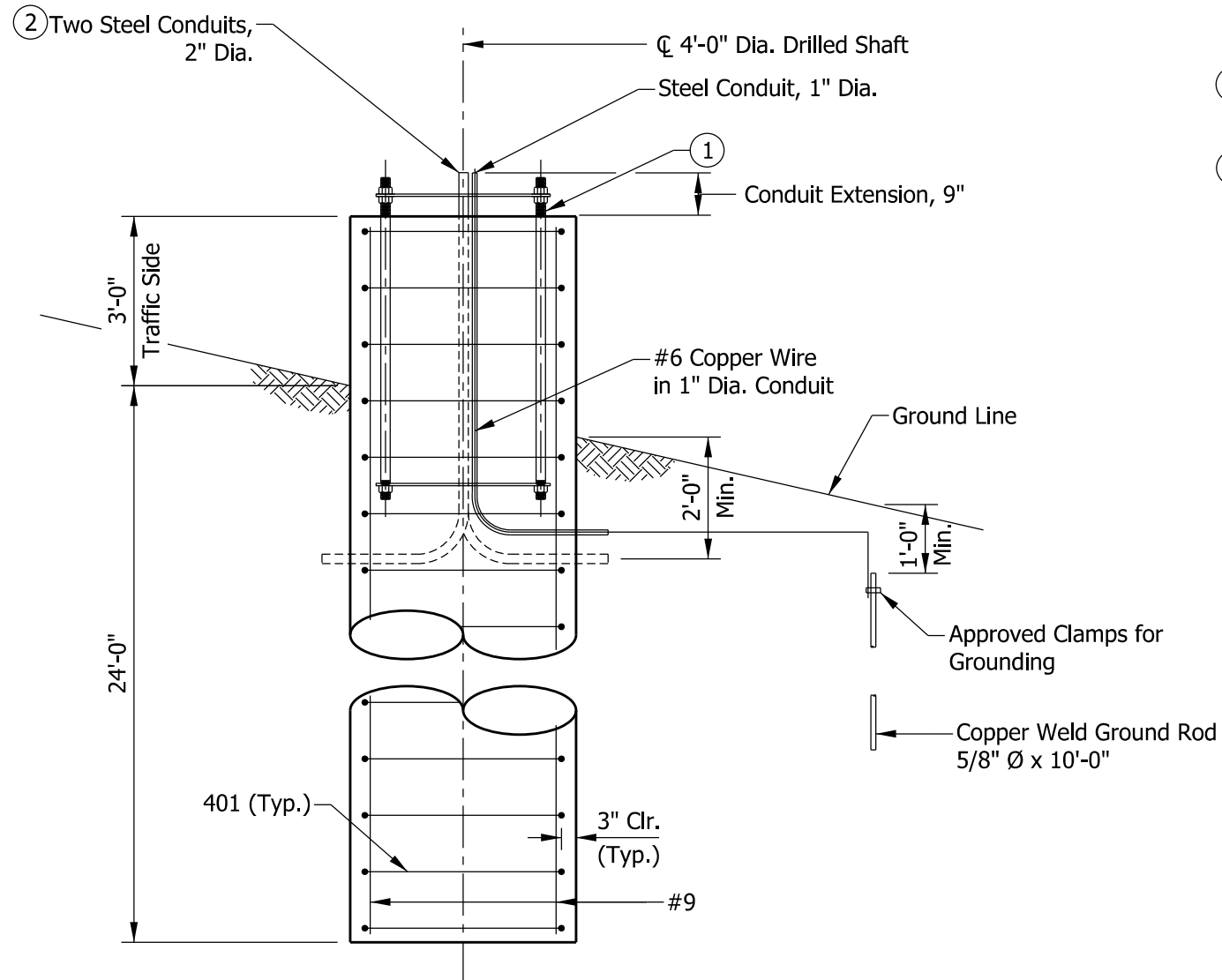
**SEPTEMBER 2013**

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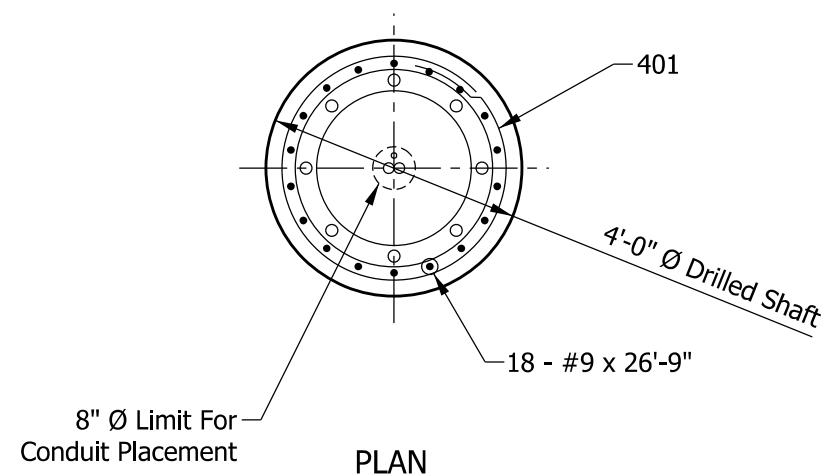
	/s/ <i>Alfredo B. Hanza</i>	02/05/13
	DESIGN STANDARDS ENGINEER	DATE
	/s/ <i>Mark A. Miller</i>	03/27/13
	CHIEF ENGINEER	DATE



**ELEVATION**



**SECTION U-U**



**NOTES:**

- ① See Standard Drawing E 802-SCLS-12 for anchor and positioning plate and anchor bolt details.
- ② Thread and cap both ends of steel conduit.
- 3. Surface seal top and sides of foundation to the ground surface.

BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	18	26'-9"	
Total #9			1637 LBS
401	28	12'-0"	
Total #4			224 LBS
Total Epoxy-Coated Reinforcing Bars			1861 LBS
MISCELLANEOUS			
Concrete, Class A			12.6 CYS
Surface Seal			4.3 SYS

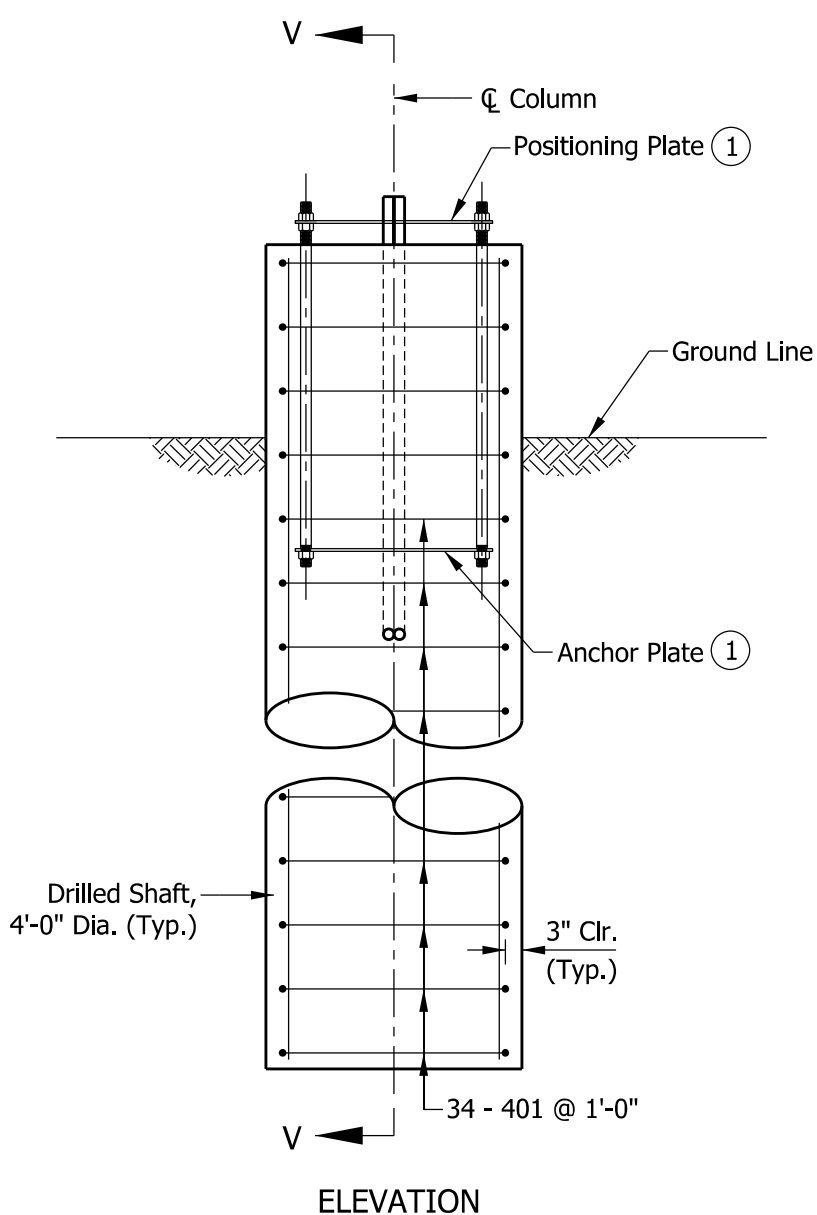
**INDIANA DEPARTMENT OF TRANSPORTATION**

**SIGN CANTILEVER STRUCTURE TYPE C, D, E, OR F  
FOUNDATION, 36" HEIGHT**

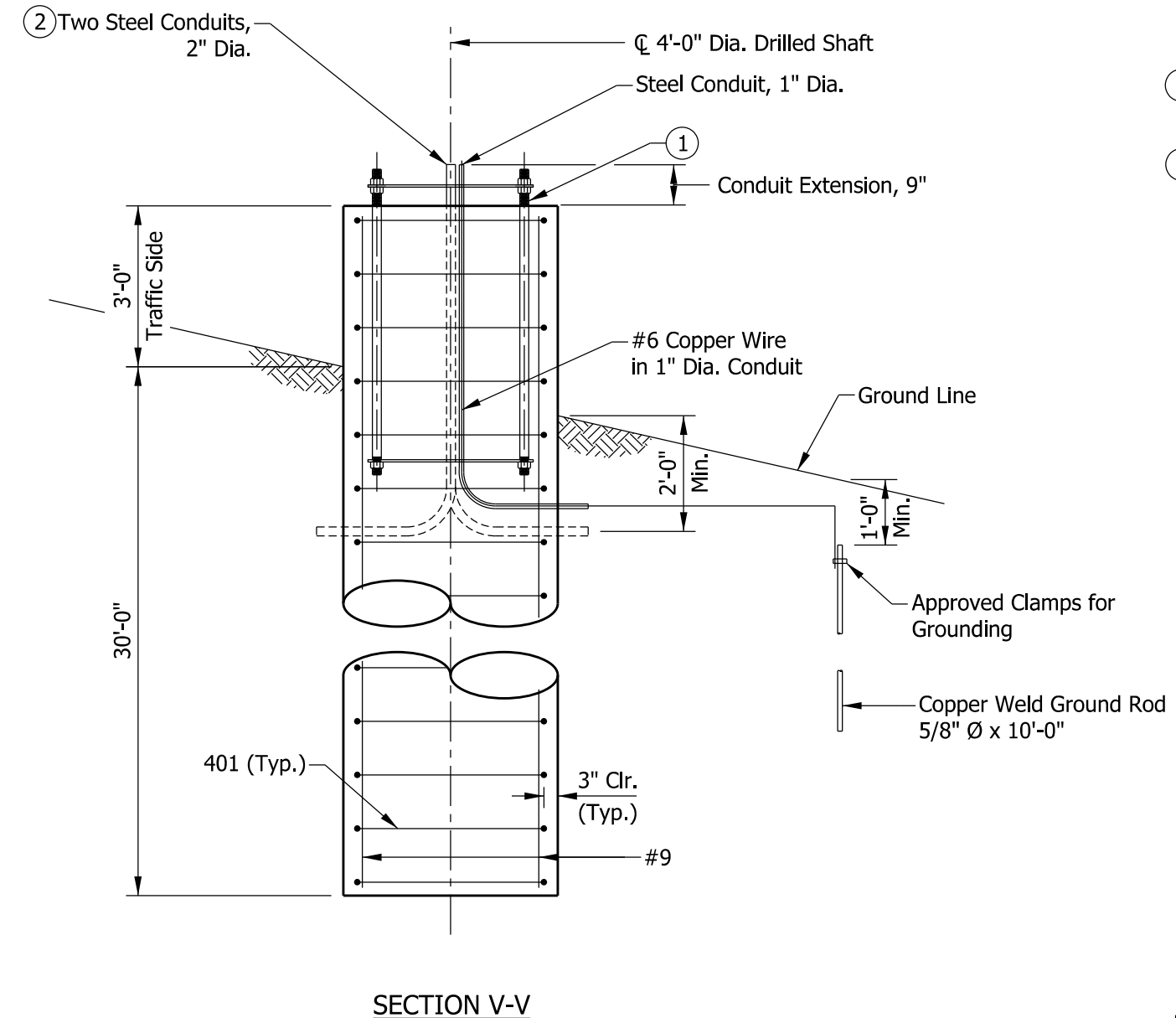
**SEPTEMBER 2013**

**STANDARD DRAWING NO. E 802-SCLS-21**

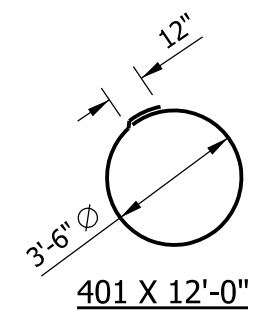
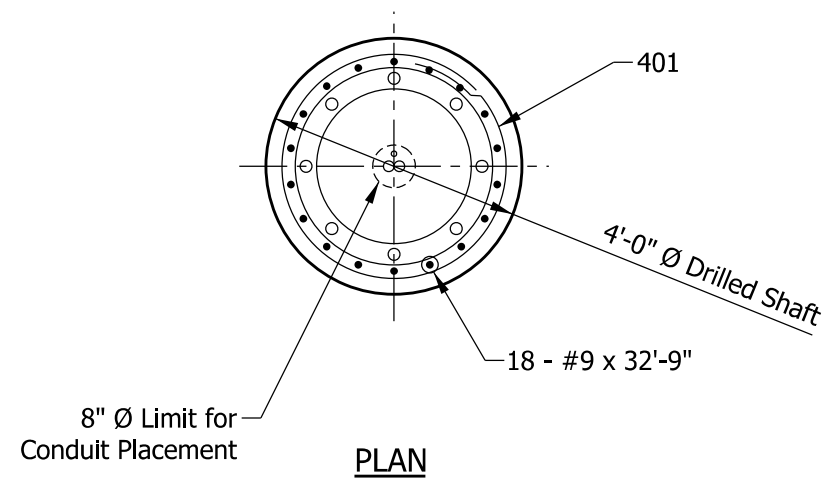
	/s/ <i>Alfredo B. Hanza</i>	02/05/13
	DESIGN STANDARDS ENGINEER	DATE
	/s/ <i>Mark A. Miller</i>	03/27/13
	CHIEF ENGINEER	DATE



**ELEVATION**



**SECTION V-V**



**NOTES:**

- ① See Standard Drawing E 802-SCLS-12 for anchor and positioning plate and anchor bolt details.
- ② Thread and cap both ends of steel conduit.
3. Surface seal top and sides of foundation to the ground surface.

BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	18	32'-9"	
Total #9			2004 LBS
401	34	12'-0"	
Total #4			273 LBS
Total Epoxy-Coated Reinforcing Bars			2277 LBS
MISCELLANEOUS			
Concrete, Class A			15.4 CYS
Surface Seal			4.3 SYS

INDIANA DEPARTMENT OF TRANSPORTATION

SIGN CANTILEVER STRUCTURE TYPE G, H, OR I  
FOUNDATION, 36" HEIGHT

SEPTEMBER 2013

STANDARD DRAWING NO. E 802-SCLS-22

	/s/ <i>Alfredo B. Hanza</i>	02/05/13
	DESIGN STANDARDS ENGINEER	DATE
	/s/ <i>Mark A. Miller</i>	03/27/13
	CHIEF ENGINEER	DATE